The Primary Teacher is a qurterly brought out by the National Council of Educational Research and Training (NCERT), New Delhi. The Journal intends to give the practicing teachers and concerned administrators, authentic information about the educational policies being decided on and pursued at the central level. It aims at giving meaningful programmes, courses of study, etc. offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education. The major features of *The Primary Teacher* are:

- Educational policies concerning primary education
- Questions and answers
- States round-up
- Illustrated material for classroom use.

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THE PRIMARY TEACHER

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Editorial

Education is probably one of the fields that has faced as many as innovations in spite of the fact that education itself is an innovation. All innovations in education have been aimed at improving the quality and its out reach to all sections of the society. While efforts have been made to make education accessible to all as an imperative for human development, efforts have also been made to enable all stakeholders to be a part of providing education with quality. This was a major development in the last decade of the last century.

Making the classroom interesting and challenging to provide an environment that would serve as a basis for the young children to continue in school is a major challenge that has been addressed by researchers, educational philosopher, , policy makers and curriculum designers and implementers, practicing teachers. All the above stakeholders of education have realised and accepted that no innovation in education is possible and achievable with out the involvement of the practicing teachers who actually interact with the students. Encouraging teachers to innovate and experiment newer ways and practices in their classroom suiting the local needs is a major effort in keeping children happy and feel good in schools. The National Council of Educational Research and Training (NCERT) in its efforts to encourage the classroom teachers to innovate with their limited resource conducts the All India Competition for Teachers and Teacher Educators on Innovative Practices and Experiments with a purpose to reward those who have an inclination to innovate and to trigger the interest of the teachers and teacher educators to new practices. Papers in this special issue are by the award winning teachers and teacher educators who designed and tried the experiments suiting their locale and found to be worth replicating for wider dissemination.

The papers reflect on the teachers urge to find newer methods to bring in interest in children for improved learning environment in the classroom. The strategies, methods and materials used in the innovations can be replicated for further use. These innovations would also serve as an instrument to trigger the interest of others to indulge in such innovations for improving the quality of learning in the classroom.

I would like to express my sincere gratitude to the Department of Teacher Education and Extension of the NCERT for making it possible to bring out this special issue on innovations in school and teacher education. My thanks are also due to Dr. M.S. Sirohi for selecting and providing the papers as the Guest Editor of this special issue.

R. Meganathan
Academic Editor

Gandhiji's Talisman

I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:

Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions?

Then you will find your doubts and your self melting away.

mkGandhi

Innovations in School Education

Intentions and Implications

M.S. SIROHI*

This paper makes an attempt to define what an innovation means in school education. It goes further on to explain the intentions and implications of the innovations in school education. The author also makes a point while saying how a thing changes or action leads to innovation.

The fact that many Commissions and Committees have been appointed by the Government after independence on different aspects of education highlights the nation's interest for improvement of educational system in the country. Education is perceived as an instrument of bringing about social change, economic development and overall progress of the nation. The Constitution of India envisages free and compulsory education to the children upto the age of fourteen years (Article 45). Consequently to cover children of this age group more and more schools are being opened and various alternative methods to achieve this objective have been developed. Besides government's efforts for improving the educational system at all levels, various institutions and their faculty members are also trying to improve the system by solving problems related to their day-to-day work by adopting and adapting new improved and tested approaches to teaching as suited to their local conditions. Teacher is regarded as both a producer and a consumer of research. As an individual, he is influenced by his personal characteristics, aspirations, social system and communication system. He has to keep himself abreast of new ideas and practices taking place in the field of education and to innovate and experiment new ideas to solve the classroom problems. Innovation is the result of identifying the needs, determining various possible approaches to meet the needs, evaluating, modifying and adapting the approaches. It is, in a

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way, an endlessly continuous process to meet the challenge of ever emerging classroom problems.

Innovation has been defined differently by different persons. It will be worthwhile to look tentatively into the definitions of innovation to comprehend its intent. In education it has been defined as a new idea perceived by an individual who adopts it for qualitative improvement of education, though it may not be very new for others but certainly it may be, different from the present or existing which is measurable, deliberate, durable and unlike to occur frequently. For Miles (1964) innovation is a species of change. Generally speaking, it seems useful to define an innovation as a deliberate, novel, specific change which is thought to be more efficacious in accomplishing the goal of a system. It seems helpful to consider innovation as being willed and planned for, rather than occurring haphazardly. Innovations in education have a defined, particular specified character rather than being diffuse and vague. Richland (1965) has given a laborious definition of the term as, "Innovation is a creative selection, organisation and utilisation of human and material resources in new and unique ways which will result in the attaining of a higher level of achievement for the defined goals and objectives." Joshi (1980) defines the terms as an idea perceived as new by adopter though it may be an old one for others. Bhola (1980) defined it as a concept, an attitude, a tool with accompanying skills or two or more of these together introduced to an individual or culture that have not been functionally incorporated before. National Seminar on Innovations in Education in India (1977) organised by the NCERT (19-12 April, 1976) felt that innovation was not just a novelty but a deliberate effort to introduce a specific new practice to bring about a desirable social change.

Innovation refers to an idea, practice or object that is perceived as new by an individual or other unit of adoption. The perceived newness of the idea for an individual determines his or her reaction to it. The newness may be expressed in terms of knowledge, persuasion or decision to adopt. Innovation is distinct from invention. Invention is regarded as the first stage in innovation. Though both are concerned with the starting of a new idea, developing it, testing it, finding a way to execute it i.e., converting the invention into an innovation, invention tends to be a more time-consuming transformation process and it provides the solution to the problem. Though the words *creativity*, *invention* and *innovation* are frequently used in similar sense but a major distinction exists between them. Inventions denote originating new idea, innovation implies a new way of doing things and creativity refers to the process of having and articulating new ideas. It is believed that one can be inventive i.e., creative without being innovative and also be innovative without being inventive. Innovator is one who implements the inventions which were made elsewhere without being one's own and creative. Variety of innovations are being introduced in the schools throughout the country for the purpose of improving instruction and enriching learning experiences of students. In some cases the concept and the components of the new programme are the result of efforts by experienced teachers to upgrade the quality of learning in the traditional classroom.

The unprecedented scientific and technological developments which are taking place all over the world, has influenced our society and educational system as well. Naturally the corresponding change in education—its content, methods of teaching and evaluation of various subjects are also required. The school teachers and teacher educators, therefore, have a different and new role to play in this regard. They have to keep abreast of the educational innovations and practices and try them out in their classroom situation. There are problems which teachers face frequently while discharging their work. Over-crowded classrooms, double shift system, single teacher schools, new approaches of teaching of mathematics and science subjects, problem of education of the deprived pupils and so on are some of the problems the teachers are usually confronted with. Such problems seem to affect the quality of education because of their organisational and administrative implications. The teacher, therefore, has to think of ways and means to overcome them in order to improve the quality of teaching. It is, therefore, necessary for a teacher to innovate new methods of teaching and learning. A conscientious teacher, aware of these problems, will not just perform his functions in routine manner, nor would he accept ideas before trying them out in his own situation. There is need that the teacher should not only utilise and exploit the ideas brought forth by educational thinkers and researchers but also play the role of an innovator. Innovations play a very important role in providing solution to the emergent problems in the field of education. Through innovations and experimentation the quality of education is improved the standard of performance raising to meet the challenges emerging in the field of education. Moreover, through innovations new paradigms emerge which set high performance standards leading to positive change in the practice in vogue.

Every country has 'its educational system peculiar to its needs, culture and traditions.' The fact that in any system of education the teacher occupies a pivotal position for providing effective education is supported by the three important documents—National Commi-ssion on Teachers (1985), National Policy on Education (1986) and Rama Murthy Review Committee Report (1990). The NPE states, the teacher should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities and the concerns of the community. The need is for 'multi media teachers rather than a single medium teacher'. The former has a capability or role to play in the goals, structures or processes of the formal and non-formal systems of education. Innovations are based on the felt need for change, enhance improvement in the utilization of teaching technology, human physical and financial resources, classroom management, student achievement curricular and co-curricular activities, institutional variable, international relationships, social climate and democratic leadership etc. Trying out of new ideas, practices and experiments can bring about effective client centred educational change with respect to students, parents, employers, community, teachers, administrators, planner and policy makers. Therefore, there is need for every teacher to try and adopt new practices for qualitative improvement in education.

Many teachers are already trying out some ideas and solving problems in their own ways. However, most of them do not follow scientific techniques and, therefore, are unable to determine the effectiveness of an idea or a particular method so that they may accept or reject it. Another reason why teachers should be encouraged for experimentation in their own classroom is because there is a natural resistance among teachers to use the findings of research done by others. To use others findings require change on the part of a teacher. Any new thing always implies some degree of fear and uncertainty. Old and traditional methods are safe and certain, and do not expose one to any kind of testing situation. Therefore, the teacher is reluctant to use the new researches. This resistance has to be broken by inculcating the habit of experimentation and practices among teachers in their classroom situation to solve the problems related to various areas. The problems may relate to areas such as–

- curriculum,
- teaching learning practices,
- examination and evaluation,
- methods and techniques of teaching,
- attitude and behavioural problems among students,
- co-curricular activities,
- guidance and counselling,
- administration and organisation,
- health and physical education,
- work experience and vocationalisation,
- population education, and
- national integration.

All of these areas may have different kind of specific problems which may be faced by teachers in their classrooms and can be taken up for experimentation. The areas suggested above are not exhaustive. Teachers should take problems for experimentation according to their felt needs and the resources available. The problem taken up for experimentation should be specific and related directly to the classroom situation.

Thus, from the preceding explanation and definitions it is clear that an innovation is part of the process of educational change, application of a novel idea and is a deviation from the old, traditional or current ways of doing things. It is a new practice introduced in a present environment. It takes care of the local conditions and is in consonance with the educational objectives of various stages. It is a planned and deliberate effort which results into change of attitude and behaviour of an individual and qualitative changes in activities of an educational institution. It may result in bringing about a change in educational objectives, methods of teaching, curriculum, subject content, practice teaching, planning and organisation of co-curricular activities, utilisation of resources, professional enrichment of student-teachers and teacher-educators and other programmes of an institution. The product so achieved will then be different from the existing one.

Effectiveness of Puppetry Method in Teaching of Biology

VINEETA SIROHI*

Theoretical discourse no longer forms the basis of teaching learning in the current age. Innovation in teaching learning techniques adds to its uniqueness. Therefore, the present article attempts to use the method of puppetry to impart instruction in Biology as compared to the traditional method. The study carried out with Class VII students revealed the effectiveness of puppetry as a means for attaining Clarity of concepts and better achievement.

Learning is the core of Education. A child's mind is like a clean slate and his later life is dependent upon what impressions are formed in his mind at the foundation stage. If learning process takes place by active participation and involvement of students, it is more strengthened, as a consequence the basis concepts are learnt properly at the right stage. Deviating from the traditional method of teaching adopted by teachers, there is need for innovations in teaching so as to cater to the psychological needs of students and provide them with pleasant experiences motivating the students intrinsically, thereby attracting more students to school. If the school experiences are related to day-to-day life of students, they find more meaning in going to school. Besides this, if they are encouraged for independent and divergent thinking, enhancing their creativity much of their needs are actualised. So in order to improve the quality of education, increasing motivation in students and making school experiences satisfying, teachers should be encouraged for their steps to introduce and implement innovative practices in teaching. Puppetry method is used to project the content in an

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interesting manner to students. Puppetry refers to a cooperative planning of the content by the teachers and the students. This method helps to solve the problem of apathy and lack of participation of students. If the teachers take initiative in innovations in teaching they can provide for much pleasant and satisfactory experiences and develop critical minds. Therefore, a need for innovation is felt in the present education scenario.

Our education system is rigid and learning is mostly text-bound which does not permit the development of broad range of abilities. The teachers are also rigid, authoritarian and accept only the close-type of answers. Creative thinking is not encouraged at all.

Use of Puppetry in Education as method has been adopted by Lok Kala Mandal, Udaipur—an organised, devoted to traditional Art, Craft and Culture. The institute initiated Puppetry in formal system of education in 1970 by launching a programme of two weeks training for teacher-educators drawn from Vidya Bhawan Teachers College, presently an Institute of Advanced Studies in Education under MHRD Scheme of Quality Teacher Education Programme.

Use of puppetry implies creating through Puppets an expression of what needs to be projected through the content of the topic to be taught in the class by designing and fabrication of puppets. Teaching through puppetry implies cooperative curriculum planning by students and teachers. These efforts help in solving the problem of indifferent students who become active because of cooperative plan. Moreover, shy and reluctant students of the class participate actively in the learning process. Their thinking is stimulated and they emerge as creative members of the group-one of the investigators who personally participated in the training programme of Lok Kala Mandal has felt that the use of Puppetry, being a deviant process motivates learners because of the process of preparing puppets and projecting through them the difficult concepts and ideas in simple situations of real life. All depends on how you sequence the content and what type of expression the puppets presents aesthetic taste depicted in the Puppet also has a bearing on learning process to the group. For a fair judgement, the students control group and experimental group have been administered the same achievement test after the class so that the result could classify the effectiveness of two methods.

Rationale

Teaching and learning is a two-way process where both the teacher and the student must actively paticipate. The relationship between learners and learning tasks has been the concern of educationists, traditionally by developing educational theories. But in the process of learning, the Psychology of learning is a very important component to actualise the goals of Education. The important issue is how to transact the ideas or provide the learning experience to bring about most effective learning of a task. This is also evident from Bruner's (1964) Statement "How can material of a certain kind be presented and sequenced that it will be readily and most transferably learned?"

It should not only be the lecture method adopted usually by most teachers but other creative and innovative methods should be introduced to provide for joyful learning experiences and effective learning of concepts. In other words, There is need for innovation in teaching, which can bring about better results and sustain the interests of students and lower the drop-out rate also. The learning environment consists of the substance of all innovations and the teacher is the main agent of innovation. The mother of innovation will remain what it has always been: more new things will be tried because necessity calls. But research? You can easily have innovation without research (Young, 1965).

The innovative techniques also enhance creativity leading to productive and divergent thinking in students. Creativity which is not nurtured in schools, due to (i) weakness of an average teacher, (ii) lack of research in developing teaching technique, (iii) rigidity in the education system, and (iv) failure in the administration in diffusing new methods (Kothari Commission, 1966). The rationale behind the study was to link Psychology of learning to the educational theory by adopting an innovative technique of teaching. In view of the above facts the study aimed at the following objectives:.

Objectives

- To reorganise the learning experiences through puppetry method.
- To enable the learners in attaining concepts through puppetry method.
- To develop divergent thinking in the learners.
- To see the effectiveness of this method in comparison to the traditional method of teaching, in developing knowledge, understanding and application.

Methodology

Sampling

The study was carried out on a sample of 30 students of Class VII of Secondary School. The students were divided into two groups—control and experimental group—through Random Sampling techique. The odd numbers were assigned to the experimental group and the even numbers were assigned to the control group.

Tools

(a) Two lesson plans prepared on the topic Life Processes-II, Sub-topic: Life Cycle of Butterfly:
    (i) According to traditional method
    (ii) According to puppetry method
(b) Achievement test.
(c) Interview schedule to students.

Results

The raw scores for control and experimental groups were collected on the basis of achievement test administered on them. Thereby, mean value of control group was found to be 4.73 and that of experimental group was

12, S.D. value for control group was 2.01 and for experimental group was 1.78, hence value was computed (10.475) to find out the significant difference between the mean scores of the groups.

Result Table

	Mean	S.D.	t value
Control Group	4.73	2.01	10.475**
Experimental Group	12	1.78	

** Significant at .05 and .01 level

Interpretation

By analysing the scores we found that the mean score of control group and experimental group differed by 7.27. Mean score of experimental group has quite high.

Standard deviation scores for control group is 2.01 indicating that there is much dispersion of scores in the case of control group than experimental group whose S.D. value is 1.78 The 't' value was also calculated to see the significant difference between the mean scores of two groups. The 't' value is 10.475 exceeding the critical value both at .05 and .01 level thereby rejecting the null hypothsis that the mean difference between the two groups is not due to any score but due to the method used in teaching.

Question-wise analysis of the scores were done in terms of knowledge, understanding and application and the findings indicated that the students of control group could score in questions of knowledge and partly of understanding. None of them could attempt questions of application. Whereas in experimental group almost all the students could attempt all the three types of questions and could score high even in application based questions. These facts clearly point out the effectiveness of the puppetry method in teaching of concepts at higher cognitive level. The fundamental concepts could be understood properly with this method, as a result students could apply the basis concepts when required to other situations.

Even the feedback of interview of students indicate that in experimental group they were interested throughout the lesson and highly motivated to learn and actively participated in class. But feedback of control group at the time of interview of the students reported that the lesson was too monotonous and boring. They did not feel like giving responses.

From the above data, it can be inferred that logically the statistical operations give evidence of significant difference in achievement of the two groups, supporting the effectiveness of puppetry method in teaching of concepts.

Conclusions

The major outcomes of the study indicate that:

- Puppetry method is more effective in attaining concepts.
- The achievement in traditional method was mostly at the knowledge level and partly at understanding level, application level was nil. While in the Puppetry method achievement at all the three levels was quite high

as indicated by mean score of students.

- From the feedback of the students, it is clear that the group in which Puppetry method was used felt highly motivated and maintained interest in the class.
- Use of puppets developed thinking in the learners as indicated by classroom behaviour of students.

Educational Implications

- The learning experiences can be organised in such an activity oriented manner so as to sustain the interest of students.
- The teachers can use their own abilities in planning for such classes which enhances their divergent thinking.
- Innovative method provides 'Joyful learning experiences' to students by deviating from traditional methods.
- The motivation level of students was also raised and they were more inclined to attend such classes, which may to some extent, solve the problem of drop-outs.
- Relating the concepts to the real life experiences, giving full freedom to the imagination of students helps in learning the concepts easily.
- The ability to apply the knowledge to different situations is promoted.
- It is economic in terms of cost effectiveness since the waste material can be used in making of the puppets.
- By giving students role in handling puppets, shy and reluctant students of a class can be activated and encouraged to learn more effectively.

It may be concluded that implementing such innovative methods in teaching will definitely improve the achievement level of students, raise their motivation level, effective learning of concepts and provide joyful learning experiences which is the need of the hour.

Value Education through Teaching of English

H. CHANDRAN*

With emphasis on all-round development, imparting of value education is as essential as the need for instruction inbuilt in the academic subjects. The use of language as the means to impart values is emphasised in the article. Various innovative ways such as stories, debates, seminars, etc. are used to inculcate values such as hard work, team spirit, concentration, spirit of love and cooperation, Attempt is made to evaluate English language as a means to achieve the values.

Introduction

Education should help one to achieve perfection in work. Work must be done efficiently with a sense of social responsibility, giving secondary importance to personal benefits and with minimum scope for mistakes. The aim of Education should be to give proper knowledge and skill to carry on this kind of work as beneficial to oneself and society. Intellectual perfection is also essential. As Vivekananda points out mere gathering of information is not education. He says, "The only value of knowledge is in the strengthening, the disciplining of the mind". Education must ensure that people will not deviate from the moral principles. It must help one to remain in one's natural state of goodness. Moral development is the axis on which revolves one's personality and character.

The role of the teacher is a crucial factor in any area of learning and in particular, value education. The ultimate aim of value education is to enable the pupils to develop a wholesome personality and in this task, the teacher plays a significant role.

One can identify three areas in which the teacher can influence the value development of his students. First, in the subject *he teaches, he will both* advocate and set certain definite standards. Every subject has its own criteria of values, which, with the discipline of study make intellectural and moral demands upon the students and teacher.

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Secondly, the teacher should establish and maintain clear standards of behaviour and encourage the pupils to behave towards himself, towards one another and towards the whole community in an orderly way.

Lastly, the teacher has to help pupils become free and rational adults by personal example. He should provide for the children a model of a free and rational adult in his inter-personal relations through his conduct and reactions to the day-to-day incidents of school life.

Values through Teaching of English

Values can be inculcated through different subjects. More and more values can be inculcated through teaching English.

Story-telling, debating, discussion, dramatisation are some of the methods of teaching English. Story-telling is the most appropriate method of inculcating values; pupils are very much motivated to learn the concepts easily. The teacher should be a role model in the class and the job is quite easy.

Some of the Important Values

Friendship, open-mindedness, respect for eldes, sacrifice, loyalty, obedience, sincerity, hard work, self-control dedication, reality, creativity, adjustability, team spirit, love for nature, honesty, service, *deep seated* love of one's own country, co-operation, cleanliness, kindness, wisdom, devotion, truthfulness, concentration etc. are some of the important values.

The author of this experiment has been teaching English for the past two decades and has been successful in inculcating values. Being an active scout master and English teacher the work has become very simple and effective.

A survey has been conducted at the end of the academic year 2001-02 by supplying Questionnaires to Classes IV and V. The result is impressive. Most of the pupils developed right attitudes towards values. Optionism has been developed. Questionnaires were issued to pupils.

Objectives

1. To stress the need of value education in schools.
2. To inculcate values by teaching through languages.
3. To develop interest in children by narrating stories, debates, seminars, symposiums, speeches, etc. in English language.
4. To foster the values in children so that they may grow up to possess a spirit of love, service and dedication.
5. Correlation of moral and spiritual education.
6. For the constant theme of human excellence.

Meaningful education in a country such as ours would have its basic values, as the foundation for the training of its children–Indian culture is a bouquet of faiths and traditions of varied beliefs. Hinduism, stands for humanism, liberalism, eclecticism and universalism; Buddhism stands for patience, compassion, and righteousness; Jainism, for non-violence, truth and austerity; Christianity for love, service,

Results obtained through Questionnaire

S.No.	Items	Positive	Negative
1.	'Honesty is the best Policy'. Do you follow this doctrine?	100%	-
2.	Do you believe in almighty in God?	98%	2%
3.	Service to mankind is service to God. Is it always true in your case?	81%	19%
4.	Do you always obey the parents, teachers and elders?	87%	13%
5.	Are you the lover of nature?	92%	8%
6.	Will you sacrifice for others?	93%	7%
7.	Are you kind to everyone in day-to-day life?	97%	3%
8.	Do you always speak truth?	87%	13%
9.	Are you confident in every task?	97%	3%
10.	Are you friendly with everyone in the school?	88%	12%
11.	Do you have the leadership qualities?	87%	13%
12.	Are you very punctual in attending the school?	85%	15%
13.	Will you respect everyone in day-to-day life?	92%	8%
14.	Are you creative in nature?	90%	10%
15.	Do you have a spcial devotion towards your nation?	87%	13%
16.	Duty is God. Are you updating every work?	92%	8%
17.	Do you believe in ahimsa/non-violence?	74%	26%
18.	Are you loyal to every one around you?	87%	13%
19.	Are you duty-conscious?	94%	6%
20.	Do you respect all religions?	98%	2%
21.	Do you believe in charity?	90%	10%
22.	Are you the follower of optimism?	97%	3%
23.	Would you like to become a perfect personality in life?	97%	3%

and kindness, and Islam, for equality, brotherhood, justice, and solidarity. Our children should be made to appreciate the unique unity in diversity and identity in multiplicity. The strength of our nation lies in its pluralism, which deserves to be cherished and both nourished.

As is the teacher so are both the students. A good teacher imparts to the children certain values, individual values, social values, moral values, and cultural values. Individual values would include cleanliness, good habits, discipline, regularity, punctuality, decency, decorum, health, hygiene, *self-respect, respect for others*, and *respect for the nature*. Social values would include concern and compassion for the poor, respect for the faith, belief and religion of others, love, tolerance and helpful to the needy, unity harmony and co-operation with fellow citizens and patriotism and service for the land.

Self-study skills in Learning Science at the Middle School Level

RENU VAISH*

As opposed to the traditional chalk and talk method of teaching and learning, the modern era emphasises on more innovative methods of learning; particularly in the various subject areas. The present article upholds this ideology in the teaching of science. Based on a sample of Class VIII students and through pre-experimental and post-experimental analysis ***the study attempted to emphasise*** *the importance of developing self-help skills in learning of science. It indicated highly positive response* ***from the students*** *to the new methods of teaching and learning.*

INTRODUCTION

Traditionally science was concerned with compilation of facts and phenomena related with living and non-living things. Today, science is considered to include not only knowledge but also evolving skills, manipulative skills, intellectual skills as also institutionalising skills.

Looking at the present era, one feels the need of an entirely new approach to the process of science learning. The world has now become an information rich and technology based society. It is becoming essential to give emphasis more on "self-study skills".

If we wish to empower the students at the middle school level and develop them as autonomous learners, they need to be equipped with certain self-study skills, i.e. the skills related to learning "how to learn".

Any skill, when it is to be developed in an individual, he or she needs to undergo some sequence of activities to acquire the skills. After *a particular* skill is practiced for sometime under the guidance of a teacher. *The skill is* transferred to day-to-day learning and applied to a variety of situations in order to consolidate the skills. Practice and application of the skill is essential for sharpening and institutionalising.

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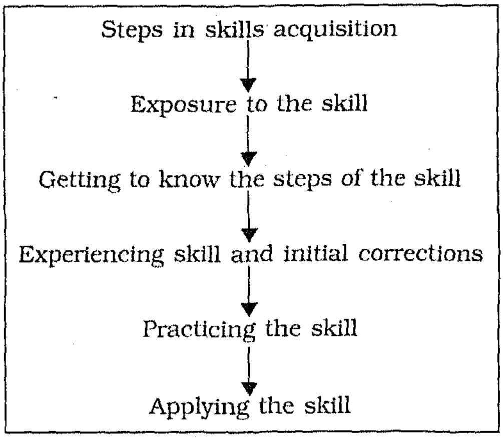
BOX 1


Steps in skills acquisition
Exposure to the skill
Getting to know the steps of the skill
Experiencing skill and initial corrections
Practicing the skill
Applying the skill

Bishop (1989) *makes the following remarks on* the conventional system of education.

- Most conventional secondary schools are basically quite inhospitable places. Their atmospheres are, more reminiscent, they appear as some penal institutions than places ostensibly devoted to learning and the creative process.
- Students are pigeon-holed and categorised, earmarked and compartmentalised into curricula and programmes, which hardly offer opportunities for the development of significant inter-personal relations.
- Because of the bureaucratic organisational structures, students are assigned as a mass rather than as individuals. As a resusIt, students become passive agents of the learning process. Essentially, the total school system is a monolithic administrative convenience.
- The conventional school programme stresses the idea that students are irresponsible, that they dislike school, that learning can take place duly in a formal self-contained classroom where a teacher is present as an authority and only learning resource.

According to Johnson (1973), sooner or later reading textbooks must become a means to learning rather than reading taken as something learning to do. Two skills that are required for student's independent growth in understanding the written material are

(i) use of context to estimate the meaning

(ii) the location skills.

Johnson further says that the locational skills and knowledge of information organisational patterns can assist in understanding the textual material. The post-locational activity should encourage the child to think about the material read. The ideal post locational activity engenders thinking that it results in greater insight into the material read.

The very concern and expectation of the present innovative practice was to remove the students feeling "Science is a difficult subjct" and to develop the interest and innovation for learning science by self-study skills. The middle School group was chosen because the pre-adolescence age group (12 to 14 years) has the psychology of (a) Independence from adults, (b) self assertion, (c) peer group affiliation, and (d) exchange of notes with friends.

Why this very innovative practice was chosen was because of its easy approach, complete adaptation, student liking, play way method oriented, mental conductive and assessable, worth for age group, changed dynamic approach, no cost, group work, friendly and handy for students. I expect that there would be a hundred per cent innovation of student concept clarity, development of reading habit, interest in the subject, dynamic approach, group work improvement in skill and result improvement.

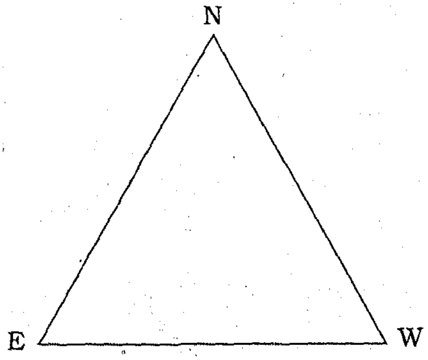
Science is not just CONTENT. Science is Content + Something. And that something is what we refer to as Processing. It is a belief that teach students Processing, and they will learn most of the science themselves. The current innovations in school emphasises the Process of science, the ways in which scientists advance their knowledge and solve problems. In the past, the Process has been neglected and the school science has been concerned almost exclusively with the Content. With the above view in mind, the experiment was undertaken with following objectives:

Objectives

1. To expose children to select information processing skill and give them some practice for it.
2. To provide opportunities for children to transfer information processing skills for independent learning.
3. To find out the reaction of students to the new strategy.
4. To institutionalise the new learning strategy through home work assignments.
5. To make the students feel that whatever they study or learn can easily be done by their own hands.
6. To stimulate their anxiety of "How to do" and "How to learn" for "self study".
7. To shift from conventional method of learning to "innovative method".

To the author innovation would mean the following Components:

N = Novelty (new idea, new practice)
E = Efficiency (to achieve the desired goal)
W = Willed (deliberate planned effort)



Outline of the exposure session

1.1 Study-skill is the mastery of the technique of accessing, processing and reorganising the information independently by reading the given textual material.

1.2 Due to reorganisation of the processed information, one moves from one level of abstraction to another and in producing understanding of material.

Development of the Innovation

Self-study skills

1. Information processing	1. Underlining key-words and phrases. 2. Classification of key words. 3. Correlating key words, terms definitions, properties, formulae and meanings.
2. Information reorganisation	1. Putting key words and phrases in circles connected by lines showing relationships (cause, effect, consequences, examples, components, opposite, etc., i.e. making a WEB CHART). 2. Comparing, contracting, showing function, i.e., TABLE CHART. 3. Showing flow of events in boxes, i.e., FLOW CHART. 4. Putting key-words, drawing squares horizontally and vertically, counting the squares and relating with answers, i.e., CROSSWORD PUZZLES.
3. Experimenting the skill	1. Reading a paragraph. 2. Putting key words and phrases. 3. Correlating, comparing, sequential flow, relating words with phrases.

Mastery through practice

Processing information | TECHNIQUE | Accessing information

Reorganising information

Change in the level of abstraction
(Linear to non-linear presentation)

↓

Understanding and insights

1.3 For any skill, one moves through the steps of the technique by practising each step. This is done in the following sequence.

Exposure to each step (A master does it)

↓

Experience of each step

↓

Practice of each step

↓

Mastery and application of the step to
varied material

1.4 Steps in self-study:

- 1.4.1 Underlining key words and phrases and listing them out.
- 1.4.2 Making a web-chart
- 1.4.3 Making a table-chart
- 1.4.4 Making a flow-chart
- 1.4.5 Making crossword puzzles.

An overall picture of self-study strategy

Read the following text and figure carefully.

Study skill development entails the integration of literacy skills, cognitive knowledge and reading strategies in order to make sense out of printed material.

First of all, skill learning must take place following by information processing and understanding respectively (see fig. below)

Suggestions for acceptance of innovation

(a) **Simplicity:** Should be simple to explain, comprehensible, well planned, easy to operate.

(b) **Compatibility:** Should create favourable climate and be in consonance with social norms and culture.

(c) **Flexible or divisibility:** No rigid approach on its acceptance in total. If situation so warrants, it may be modified or fragmented.

(d) **Practicability:** For example, individualisation of instruction may not be feasible in Indian situation.

(e) **Personality of Innovator:** Should be friendly, influential (as regards learners, parents, superiors) risk taking, imaginative and creative, have spirit of enquiry, competent and trained.

(f) **Institution's Responsibility:** Supportive climate, healthy inter-personal relation, motivation at every stage, etc.

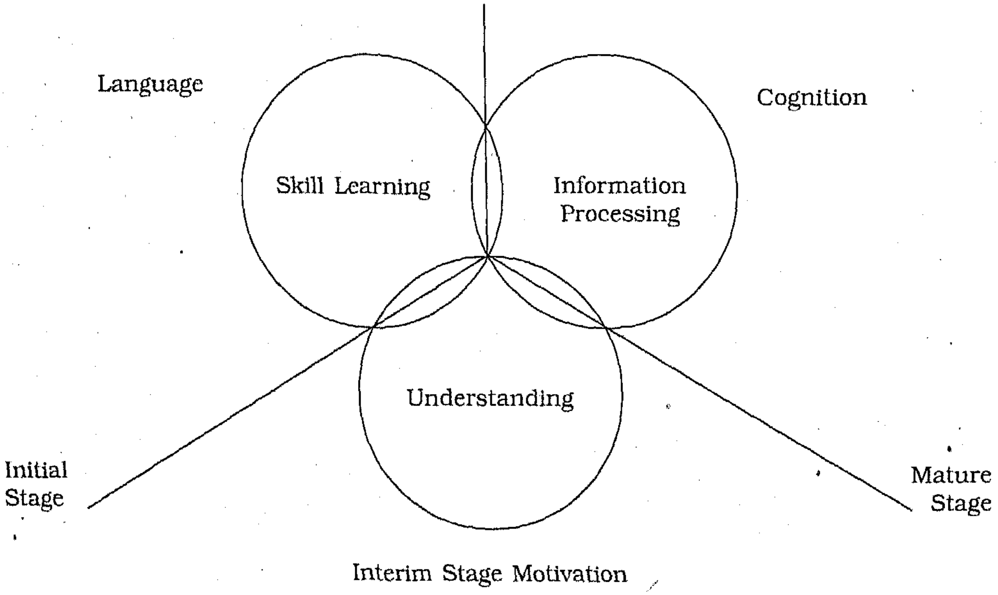


Figure 1: The relationship between various stages of study-skill development and use

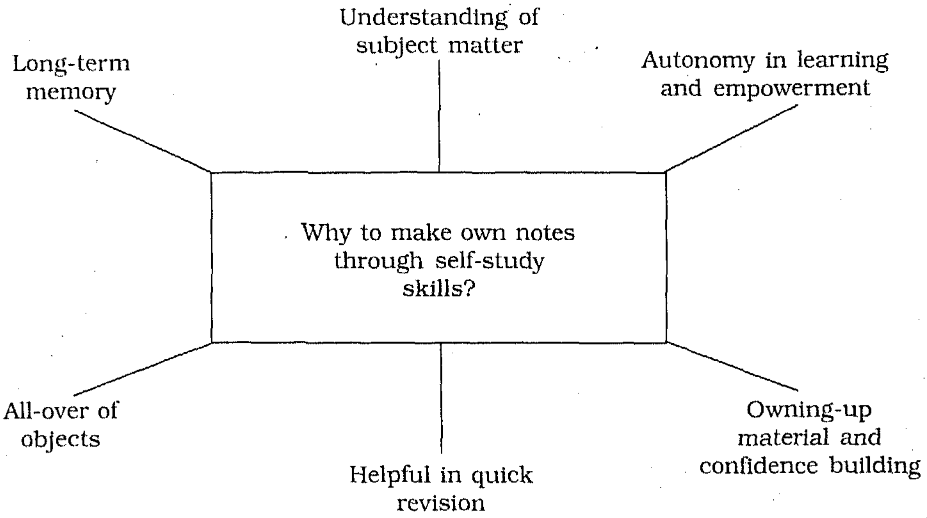

Understanding of subject matter
Long-term memory
Autonomy in learning and empowerment
Why to make own notes through self-study skills?
All-over of objects
Helpful in quick revision
Owning-up material and confidence building

Figure 2: The advantages of self-study skills

The study was planned by the researcher for two weeks with Class VIII students (as the age group of Class VIII was found to be most suitable, curious, energetic and eager to learn). The class comprised of 40 students (both boys and girls) and it was planned in the following ways:

Five students each, were grouped forming one experimental group and in total eight groups of 40 students were numbered as E1, E2, E3, ...

At the first instance the experimental group of students were introduced with the information processing skills, i.e., Web charts, Table charts, Flow charts and Crossword puzzles and the experimental group was supplied with the samples of the innovative practice work. Sample demonstration was also made with a detailed introductory know-how.

Brain storming session including mental preparation of the students was also done and attempt was made to motivate the group and to create interest amongst them.

The basis of information, i.e., chapters to be studied, moulded, rearranged and experimented by means of charts with innovative practice was also informed.

The innovative practice was done solely with the help of four self-study material, i.e., web chart, flow chart, table chart and crossword puzzles and all eight experimental groups (5 students each group of Class VIII) prepared four self-study material each of above four skills.

These activities, experiments and hands-on work by the experimental groups had enhanced the understanding, concept clarity, subject knowledge, comprehension, personal interest, etc. of the experimental groups and students, by making them move from one abstraction to another (Box given below).

The students/experimental group were exposed to interpret the demonstrations, make sense out of them, verbalise the possible steps in making the demonstrations and do the activities with their hands-on.

The experimental analysis was compared on a ten points scale for all eight experimental groups. The alaysis points are: (1) Liking of the teaching method, (2) Interest in learning the topic, (3) Involvement of student in doing, (4) Adaptation of method, (5) Memory retention of the topic, (6) Innovation, (7) Creativity, (8) Involvement in the studies, (9) Learner-material interaction, and (10) Understanding and concept clarity.

Self-study skills in Learning Science and Technology at Middle School Level

Post-Experimental Analysis

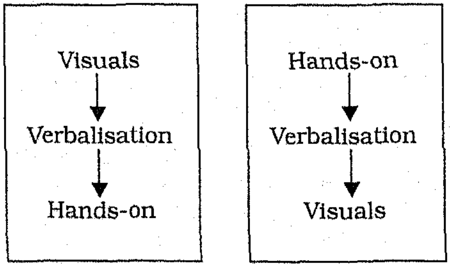
A short and general analysis was made with the test and ideology of "From laboratory to land" and the idea behind the post-experimental analysis was whether there is any acceptance and adaptation of the new experiment/ innovative practice and whether the interaction or pre-active phase showed positive response. The orientation, exposure, planning matched with the objective and ideology of the innovative practice.

The eight Experimental groups of 5 students each, numbered as E1, E2, E3, ... were supplied questions relating to evaluation, likings, acceptance, methodology, understanding, easy to learn topics, etc. The scoring sheet was measured on 3 points scale, i.e., 'A' = favourable, 'B' = favourable to some extent, 'C' = Unfavourable measuring the: (1) Knowledge (2) Understanding (3) Application (4) Skills of the students.

Box A shows data for the making, self-study material.

Box

Movement from one Level of Abstraction to Another



Box B shows data for above mentioned parameters acquired by the students.

The pre/post experimental analysis compared on a ten points scale for all eight experimental groups revealed:

The reaction of the implements and beneficiaries were very positive and 100% students liked the method and were of unanimous opinion that the method, technique, process of the Innovative project enable to increase their concept clarity, knowledge, confidence and text retention.

The method "Self Study" was a warm welcome in the students. The impact on learning personality, self concept was available at the sight of class itself. Student could thereafter do the objective type and short answer questions at random within no time. The profile and significance of the innovation practice was its novel idea, original creation by the students, features of adaptation, strength of doing by their own hands. The significance is that it helps conversion from Linerar to Non-Linerar presentation and makes a change in the level of abstraction.

Box A

Group / Scale	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8
Favourable				✓	✓	✓		✓
Favourable to some extent	✓	✓					✓	
Unfavourable			✓					

Box B

Group / Scale	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8
Knowledge	A	B	A	B	B	B	A	A
Understanding	A	A	A	A	A	A	A	A
Application	B	B	B	B	B	A	B	A
Skill	B	C	B	A	C	A	B	B

A– Favourable B– Favourable to some extent C– Unfavourable

The Pre/Post Experimental Analysis Computed on a ten points scale for all Eight Experimental group recorded

Total Students = 40 Nos. (Boys & Girls)
Age Group = 13-14 years
Class = VIII
Experimental Groups = 8 groups of 5 students each

Sl No.	*Analysis Points*	*E_1*	*E_2*	*E_3*	*E_4*	*E_5*	*E_6*	*E_7*	*E_8*
1	Liking of the teaching method	c A	c A	c B	c A	c A	c A	c A	c A
2	Interest in learning the topic	c A	c A	b C	c A	c A	c A	c A	c A
3	Involvement of students in doing	b A	b A	b A	c A	c A	c A	c A	c A
4	Adaptation of method	c A	c A	c B	c A	c A	c A	c A	c A
5	Memory retention of the topic	b A	c B	c B	b A	b A	c A	c B	c A
6	Innovation	c A	c A	c B	c A	c A	c A	c A	c A
7	Creativity	c A	b A	b A	c A	c A	c A	c A	c A
8	Involvement in the studies	c A	c B	c B	c A	c A	c A	c A	c A
9	Learner-material interaction	c A	c A	c B	c A	c A	c A	c A	c A
10	Understanding and concept clarity	c A	b B	b B	c A	c A	c A	c A	c A

Pre-Experimental Analysis	**Total %**		
(a) Favourable	a = Nil	0%	conventional
(b) Favourable to some extent	b = 12	15%	method
(c) Unfavourable	C = 68	85%	

↓ Positive shift

Post-Experimental Analysis			
(a) Favourable	A = 67	83.75%	Innovative
(b) Favourable to some extent	B = 13	16.25%	Method
(c) Unfavourable	C = Nil	0%	

Results and Conclusion

The most important idea of using innovative learning techniques was to allow the students to develop the "How to learn" information processing skills and the basic reason for the small scale study at the micro-level was not only the students but to develop innovator's confidence. The study had been undertaken for the first time as an innovation work.

The results have been very responsive and highly positive in reference to adaptation of new information processing skills and the acceptability by the students towards new methods and techniques of learning and evidently clear from the data of post-experimental analysis which also reveals the feeling that students want to shift from the conventional, traditional and linear learning routine to that of new methods by "Self-study skills". Also for the following reasons:

1. Long-term memory
2. Understanding of subject matter
3. Autonomy in learning and empowerment
4. Owning-up of material and confidence building
5. Helpful in quick revision
6. Spill-over of skills to different subjects.

Hence, the conclusion is that it is essential (a) to involve the students in doing the studies; (b) to stimulate the curiosity of the students against the havoc of science; (c) to institutionalise the new learning strategy; (d) to make children find out by their own self the Content + Something of science; and (f) to allow the students to develop the concept of "Learner-material Interaction".

Educational Implications

The utility of the small study at micro-level would prove a milestone as the same has provided confidence to the innovator and has also helped in solving out the negatives of the "Slow learners". The utility would also be to the satisfaction of the Teenage group who desire the teacher to be a "Team Leader" and not a Routine Master of the Blackboard. It would also boost up the confidence of the students to do things on their own.

The present context of the education where the world is information rich and developed techniques have emerged the very idea of "What to learn" has to be shifted to "How to learn" through "Self-study skills".

The utility further enriches the 'Future Man' of the society who does not want to learn by way of chalk and blackboard but would accept the education only after he is satisfied by doing himself.

Enhancing the Performance and Self-confidence of Slow Learners through Activities and use of Multimedia Package

HASEEN TAJ*

In the period of equality of educational opportunites, innovative approaches are also being undertaken to ensure the optimum development of slow learners in the classroom situations. The present study undertaken with 8th grade students is a step towards developing means for identifying the slow learners and also ways of using multimedia packages such as audio tapes, computers, etc. for their education. Using the Pre and Post test the results obtained were positive. Attempt has also been made to highlight the need for orientation and training to be imparted to class teachers for such children.

Introduction

The children who are included in the lowest quartile, intellectually, of the population are steadily demanding more attention from psychologists, educators, and various social agencies. No matter what the problem is examined whether it is learning, adjustment, or social behaviour, this portion of the population is sure to be involved as a factor to be evaluated. They are problem learners in school because of their limited rate and level of development. They have adjustment problems because of the innumerable failure and frustrating situations they encounter while they are growing up in conditions under present situation about which they can do little or nothing.

The composition of this 25 per cent of the population is heterogeneous, as are the problems presented. Intellectually and educationally they form at least three broad and rather distinct groups. These are the mentally deficient, the mentally handicapped, and the slow learners. The mentally deficient

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are severely retarded. They compose approximately 0.5 per cent of the total population. Between 3 and 4 per cent of the population are mentally handicapped. These people are potentially educable to a limited degree and capable of working on unskilled and semi-skilled jobs. The remainder of the lowest quartile are slow learners. About one-fourth of them come from adequate homes and are making a reasonable although somewhat difficult adjustment to the traditional school and instruction. The remainder 14 or 15 per cent of the population, comprise the group around whom the various problems are centered. It is these groups of children for whom more appropriate educational programmes and experiences must be developed.

Thus, the problems of curriculum planning and organising the programmes of the school to include instruction, designed to meet the needs of the slow learners have become an issue of major importance to educators and society in general.

The fundamental problem related to the provision of appropriate and satisfying school experiences for the slow learners is in the area of methodology development. Yet, of the hundreds of articles and pamphlets related to the education of the slow learners, few have approached the problem in this way except in a fragmented fashion.

As one observes the operations of schools in general, appears that educational thinking in the area of methodology has become stereotyped to the detriment of children who do not fit into the "average" or "normal' part of the population. Methodology traditionally, has been evolved in a number of different ways, but whatever curriculum has been used, a general methodology, theoretically applicable for all children of a specific area of academic developmental level, has actually been the result. These methods may be developed by teacher committees for use within a specific school, or may be "guides" developed by state departments of education that find wide acceptable by the schools throughout the state.

The basic methodology must then be adapted or modified where an attempt is made to meet the educational needs of those children who do not conform to the tight little compartment of normalcy.

Who are Slow Learners?

Slow learners are those children who do not keep up to grade level in their academic work, regardless of cause. Thus, in this concept the slow learners may have average or above average intelligence.

Among the general school population, 15 to 17 or 18 per cent of the children can be considered slow learners, since they are a very large group and since they do not deviate as markedly from the average as do the other groups of mentally retarded children, special educational provisions have not been considered essential. They do provide one of the largest and most intense, continuing problems facing the general classroom teacher.

Many modern educators object to homogeneous grouping primarily upon a social basis stating that this method deprives children from having the opportunity to associate with all the other children. This is undemocratic, it is an unnatural life situation, and gives bright and average children no opportunity to learn to understand slow children and appreciate any contribution they can make. It also provides the slow children with no opportunity to appreciate his relative relationship with bright children or to benefit from the intellectual stimulation they provide.

Categories of Slow Learners

1. *The Educationally Handicapped*

Children of average, superior, or low intelligence may all be educationally handicapped. This is, they may not be achieving academically at or near their intellectual potential. This deficiency will be reflected not only in the academic area immediately affected, but also in related areas as well.

2. *The Emotionally Maladjusted*

The behaviour of emotionally disturbed children is best defined as behaviour that interferes with their emotional, social, and academic growth. In terms of scores on intelligence tests and measures of academic achievement they present no clear-cut or even relatively common pattern or profile. They may be of average, superior, or retarded intelligence. These children may be achievers, non-achievers or educationally handicapped.

3. *The Socially Maladjusted*

Reasons for socially maladjusted or socially unacceptable behaviour are multitudinous. Many socially maladjusted children, whose behaviour is unacceptable, are not emotionally disturbed. With these children, the behaviour is planned and purposeful. It is often appropriate behaviour in relation to the value system of their social group. Here the teacher and school may be able to do a great deal of good over a period of time. These children need to have their value system changed; substitutes must be accepted for the unacceptable values, and appropriate behaviour must be learned.

Need for the Study

Many slow learners also have behaviour problems within the school situation. This deviate behaviour may also be carried over into the home and neighbourhood. In most instances, however, it is the result of the community and school environments—the frustration—the children encounter as a result of their inability to perform in ways that are expected or as they desire. Many parents particularly of those slow learners who come from better homes, have aspiration for their children beyond the children's ability to achieve. The children aware of these aspirations attempt to satisfy the parent's desires and become frustrated by their inability to do so. The children, too have aspirations to perform as do other children. They again become frustrated in their inability to learn as rapidly and to the same degree as the majority of the children. The reactions to frustrations and inability to perform according to accepted general standards cause the slow learners to react to their frustrations. They obtain their desired satisfaction, attention and approbation from their peer·group in socially unacceptable ways. Unless this is understood by the school and teachers the reaction of school personnel will be to actually encourage the development of deviate behaviour by mishandling the prblem. A planned programme is required to help the children understand and accept their limitations and strengths and develop aspirations at a level compatible with their abilities and potentialities. Methodology should be developed that will provide the slow learners with instruction designed in reference to their slow learning abilities rather than insisting upon conformity to a previously conceived methodology supposedly applicable to, and designed for all children.

Educational strategies incorporating basic sensory and motor experiences, sometimes paired and sometimes engaged in separately, were also explored by pioneers as Itard and his young student, Sequin, working with the retarded in France; while an even more codified system of education for the culturally deprived child employing movement experiences was developed by Maria Montessori in Rome during the first part of the twentieth century.

The majority of Montessori's activities involved manual manipulation of materials and attending to concepts made concrete through exposure to various senses.

Although the incidence of these happy kinds of academic experiences seemed to diminish in schools during the early decades of the twentieth century, writings by Strauss and Lehtinen shortly after World War II brought forth— another burst of interest in the motor component of the human personality. These observant clinicians highlighted the fact that there are considerable number of children competing within regular school classrooms who are less than adequate perceptually, are often hyperactive, and in many cases suffer from motor coordination problems. Moreover, these clinicians advocated remedial methods, intended to improve the general academic competence of children described as "Slow learners".

During the years immediately following, some educators focussed considerable attention upon the movement part of the "Strauss syndrome", and began to advocate a number of programmes of motor activities which purportedly had effects upon a child's total educational efforts.

Research by James Oliver in England and Ernest Kiphard in Germany have produced data suggesting that an improvement in the self-concept of a child through pleasurable and successful experiences in physical activity may also result in increased effort toward tasks reflecting intellectual as well as more functioning. Thus, it is hypothesised that between engaging in movement tasks and later observed intellectual improvement, there is an important intermediate factor, the ego, or "self", which if strengthened will be reflected in a more integrated and stable personality, one better able to cope with tasks in the classroom as well as on the play field.

Programmes of motor training may keep children away from onerous classroom activities in which they may be failing to achieve; the resultant spacing of practice in the former enables some of their inhibitions to the task to dissipate.

Most specifically, the following factors have been observed (and measured) to aid academic improvement when children are exposed to movement experiences in which academic content is an integral part.

1. The games are fun. Motivating practice of what might have been oppressive academic skills produces better learning when contrasted to academic enrichment programmes in which the children are kept within passive conditions.
2. An active approach to learning academic skills many times provides a natural "match" between programme content and the needs some children have to be active.

When the total body is in action, participating in game in which academic or intellectual abilities are being taxed, it is difficult for the child to attend to extraneous conditions or stimuli. Hopping in squares containing letters, counting aloud while doing so, and looking at the letters at the same time permit the child to become preoccupied with little else. There are numerous research studies attesting the importance of quality of attention to tasks; as contrasted merely to practice trials, in the enhancement of learning and performance improvement. Physical activities in which the child must be totally engrossed may tend to produce that type of qualitative attention to the task.

Further studies of the cognitive strategies employed by some "central-city" children and youth indicate that they are often more comfortable dealing with concrete situations, rather than those in the abstract. Movement activities provide concrete act to experience, to observe, and to think about.

Movement activities with the reflection of thought, and when paired with academic tasks of various kinds, provide the teacher with observable evidence of the quality of a child's thought processes. Subtle intellectual machinations occurring while seated at a desk are not as easily seen, identified, modified, or evaluated by an instructor.

In summary, it appears that there are many pervasive reasons why a more active approach might enhance slow learners performance. In essence, however, it is not advanced that all children need to be placed in action to truly learn best. There is sufficient evience that silent and relatively immobile contemplation is desirable at times, in many circumstances; and on the part of slow learners. Rather, the previous evidence has been advanced to indicate how slow learners may benefit if a more expansive look is taken not only at the direction and content of curricula, but also at how intensely the curricula may be presented.

Keeping the above facts in view, the researcher planned to select the subject environmental science in which there are lots of failure, since environmental education and awareness about environmental issues and solutions need to be known by every learner, including the slow learners. Hence, attempt is made to enhance the performance of slow learners in addition to enhancing their self confidence, which is very essential to develop slow learners self concept and self esteem and would in turn help in enhancing their overall performance.

Objectives

The following were the major objectives of the study:

1. To identify the slow learners with the help of standardised tests.
2. To devise the special activities and multimedia package to enhance the performance and self-confidence of slow learners.
3. To orient the class teachers in the teaching methodology and handling of slow learners.
4. To compare the effectiveness of the activity method and multi-media package over Traditional Teaching Method (TTM).

Methodology

Operational Definitions

The following are the operational definitions of the concepts (variables) used in the study:

1. Slow Learners

In this study slow learners refers to all those (who fall in low quartile) educationally handicapped, emotionally maladjusted and socially maladjusted children, who do not keep up to grade level in their academic work regardless of the cause.

2. Self-confidence

It refers to the individuals perceived ability to act effectively in a situation to overcome abstract and to get things go all right. This also includes the valuation about oneself.

3 Performance

Refers to the something accomplished specially by one's own ability in a calendar year of an institution.

Hypotheses

The study had the following two major hypotheses:

1. There will not be any significant difference between the mean scores of student group treated to activities, multi-media package (slow learners) and traditional teaching method (normal learners) in environmental science performance.
2. There will not any significant difference between mean scores of student group treated to activities, multi-media package and traditional teaching method in self-confidence.

Sample

Out of a total of 240 students of 8th standard from five sections studying in a private English medium school, only 32 slow learners were identified and selected consisting of 17 boys and 15 girls to form the experimental group.

Table 1
The Sample Number of Sample Selected

Sl. No.	Group	Boys	Girls	Total
01	Experimental group (Slow learners)	17	15	32
02	Control group (Normal learners)	17	15	32
	Total	34	30	64

Another group of 32 students consisting of 17 boys and 15 girls were selected randomly from among the remaining 208 normal students to form the control group.

Tools Used

1. The following standardised scales were used to identify the different groups of slow learners—
   a) Group test of intelligence developed by G.C. Ahuja.
   b) Rao's social maturity scale (RSMS) developed by Nalini Rao.
   c) Emotional maturity scale (EMS) developed by Y. Singh and M. Bhargava.
   d) The scores of students obtained in previous final examination and 3 tests in environmental science was averaged and used to assess their level of performance.
2. Further two more scales were used to measure the self-confidence and achievement of students in environmental science.
   a) Self-confidence inventory developed by Basavanna.
   b) Achievement tests in environmental science (ATES) developed by the researcher.

Design

The present study used a two-group (experimental and control groups) pre-test/post-test design (refer to Table 2 for the experimental design employed in the study). In order to achieve the objectives of the study, the study was conducted in 6 stages. A brief description of each stage is presented below. The steps followed included: Identification of slow learners and sample selection, Pre-test, Experimental treatment, Post-test,

Table 2
Experimental Design Employed in the Study

Sl. No.	Group	Pre-test	Experimental Treatment	Post-test
01	E (Slow learners)	X_1	X_1	Y_2
02	C (Normal learners)	X_1	X_2	Y_2

Orientation and training to class teachers of slow learners, and Action plan for students and teachers.

Identification of slow learners and sample selection

Initially discussions were held with the class teachers to find out the approximate number of slow learners in each class. Latter, tests were administered to a group of 240 students of 8th standard belonging to 5 sections (A, B, C, D & E) in the school. The tests include: Group test of intelligence, Social maturity scale, Emotional maturity scale, and Collected previous performance of students.

After scoring all the tests, they were arranged in hierarchy from higher to lower scores. Further the researcher computed Q1, Q2 and Q3 to identify the slow learners. Students who fell in the low quartile (Q1) in intelligence, achievement in environmental science, socially maladjusted (though high, normal or low in intelligence but educationally backward) falling in low quartile and emotionally maladjusted (though high, normal or low in intelligence but educationally backward) were identified as slow learners for this study. A cross checking was done further with the class teachers of slow learners with regard to their educational backwardness or low achievement in environmental science. Hence, 32 students were finally identified as slow learner and selected for the study to form experimental group.

A simple random sampling technique was followed to select 32 students from the remaining normal learners to form the control group.

Table 3
Mean Difference between Experimental and Control Group Learner's Self-confidence and Performance in Environmental Science in Pre-test

Sl. No.	*Variable*	*Group*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
01	Achievement test (performance in environmental science)	Experimental (Slow learners)	32	10.30	3.1	0.5	11.6	p.>0.01
		Control (Normal learners)	32	18.61	2.6	0.46		
02	Self-confidence	Experimental (Slow learners)	32	68.61	13.8	2.44	3.26	p.>0.01
		Control (Normal learners)	32	43.50	12.3	2.17		

p> 0.01 = probability greater than 0.01 level of confidence.

Pre-test

In this stage, a pre-test consisting of self-confidence inventory and an achievement test in environmental science was administered to both the experimental and control group students to find out the significant mean difference existing between experimental and control group students' self-confidence and performance in environmental science. The results of the pre-test are presented in Tables 3, 4 and 5, for the total sample in addition to boys and girls, respectively.

Table 3 shows the level of self-confidence and achievement (performance in Environmental Science) between slow learners (experimental group) and normal learners (control group). The obtained 't' test values of 11.6 and 3.26 are significant beyond 0.01 level of probability indicating that the experimental and control groups differ significantly in their self-confidence and performance in environmental science.

Table 4 shows the difference of mean (t) between control and experimental group boys. The obtained 't' values of 10.26 and 7.89 on achievement test and self-confidence, respectively clearly shows that there is a significant difference between experimental (slow learners) and control (normal learners) group boys' self-confidence and achievement.

Table 5 shows the difference of mean between experimental and control group girls' level of achievement and self-confidence. The obtained 't' values of 13.2 and 8.89 are significant beyond 0.01 level of probability indicating clearly that there is a significant difference in the achievement and self-confidence of girls from experimental and control groups.

Experimental Treatment

In this stage the researcher used activity

Table 4
Mean Difference between Experimental and Control Group Boys' Self-confidence and Performance in Environment Science in Pre-test

Sl. No.	*Variable*	*Group*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
01	Achievement test	Experimental	17	10.90	3.3	0.59	10.26	p.>0.01
		Control	17	18.30	2.4	0.42		
02	Self-confidence	Experimental	17	67.3	12.9	2.78	7.89	p.>0.01
		Control	17	42.9	11.8	2.08		

p> 0.01 = probability greater than 0.01 level of confidence

Table 5
Mean Difference between Experimental and Control Group Girls' Self-confidence and Performance in Environmental Science in Pre-test

Sl. No.	Variable	Group	N	Mean	SD	SE	't'	Level of Significance
01	Achievement test	Experimental	17	10.90	3.3	0.59	10.26	p.>0.01
		Control	17	18.30	2.4	0.42		
02	Self-confidence	Experimental	17	67.3	12.9	2.78	7.89	p.>0.01
		Control	17	42.9	11.8	2.08		

p> 0.01 = Significant beyond 0.01 level of probability greater than 0.01 level of confidence.

methodology and developed a multi-media package consisting of the following:

1. *Audios*

(a) Three (3) audio lessons on

"Impact of human activities on environment" were developed. Each lesson of 15 minutes, duration approximately in addition to recording the following was developed.

(b) Three (3) nature songs,

(c) One (1) role play, and

(d) One (1) drama.

2. *Films*

Four films were shown on various aspects of environment namely

(a) Revenge of the nature
(b) Environment and society
(c) Youth and Recycling
(d) Environment in print 2000.

3. *Visuals*

Visuals consisting of transparencies, photos, graphs, posters and newspaper cuttings were used during illustrated teaching.

4. *Computer-assisted Instruction (CAI)*

CAI consists of colourful slides, matching games and finding the hidden words, etc. In this stage further the researcher implemented activity method to teach the slow learners. Some of the activity-oriented methods used in the study are the following:

(1) Illustrated talk-cum-demonstration
(2) Experimentation
(3) Dramatisation and role play
(4) Workshops
(5) Nature Games and Songs
(6) Field visits and collections
(7) Essay competitions
(8) Science Quiz
(9) Confidence-building games and activities.

The control group (normal learners) were taught using the traditional teaching method (TTM).

Post-test

In this stage the researcher re-administered the 'self-confidence inventory' and 'achievement test in environmental science' to both the experimental group (slow learners) and control group (normal learners) to know the effectiveness of activity method and multi-media package over traditional teaching method, on the slow learners and normal learners, respectively.

The 't' test (Statistical technique) was employed to find out the mean difference between slow learners and normal learners self-confidence and performance in environmental science. The results on the post-test are presented in Tables 6, 7 and 8 for the total samples–boys and girls respectively.

Table 6 shows the post-test results of experimental and control group learners achievements and self-

Table 6
Mean Difference between Experimental and Control Group Learners' Self-confidence and Performance in Environmental Science in Post-test

Sl. No.	*Variable*	*Group*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
01	Achievement test	Experimental	32	17.93	3.7	0.55	1.32	NS
		Control	32	19.03	2.9	0.51		
02	Self-confidence	Experimental	32	48.29	11.00	2.12	1.47	NS
		Control	32	43.90	11.9	2.10		

NS = Not significant

Table 7
Mean Difference between Experimental and Control Group Boys' Self-confidence and Performance in Environmental Science in Post-test

Sl. No.	*Variable*	*Group*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
01	Achievement test	Experimental	17	17.89	2.8	0.49	1.22	NS
		Control	17	19.02	2.6	0.46		
02	Self-confidence	Experimental	17	45.01	12.10	2.14	0.50	NS
		Control	17	42.90	12.30	2.17		

NS = Not significant

confidence. The obtained 't' values of 1.49 and 1.11, respectively are not statistically sigificant even at 0.05 level of probability though the mean of control group on these variables is slightly higher, indicating the improvement of slow learners on par with normal learners.

Table 7 shows the difference between experimental and control group boys, achievement and self-confidence. The obtained 't' values of 1.67, 0.69 are not significant even at 0.05 level of probability indicating clearly that the slow learners does not differ significantly with normal learners in their achievement and self-confidence.

Table 8 shows the experimental and control group girls, mean difference in achievement and self-confidence. The obtained value of 1.87 on achievement test is not significant even at 0.05 level of confidence indicating a clear improvement in the performance of experimental group girls in the self-test over the control group learners.

Table 8 also indicates the 't' value 2.42 obtained on self-confidence is significant at 0.05 level of probability. It can be inferred from Table 9 that the self-confidence of girls though improved as compared to their pre-test, but it is not significant statistically.

Table 8
Mean Difference between Experimental and Control Group Girls' Self-confidence and Performance in Environmental Science in Post-test

Sl. No.	*Variable*	*Group*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
01	Achievement test	Experimental	15	17.91	2.6	0.46	1.28	NS
		Control	15	19.08	2.4	0.42		
02	Self-confidence	Experimental	15	51.91	14.81	2.98	2.42	p>0.05
		Control	15	42.98	12.01	3.30		

NS = Not significant
p>0.05 = Probability greater than 0.05 level of confidence

Table 9
Difference of Mean of Slow Learners on achievement test in Pre-test and Post-test

Sl. No.	*Test*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
1.	Pre-test	32	10.90	3.3	0.58	8.02	p>0.01
2.	Post-test	32	17.93	3.7	0.65		

p>0.01 = Probability more than 0.01 level of confidence

Table 9 shows the difference of mean slow learners on achievement test in pre-test and post-test. The obtained value of 8.02 is significant beyond 0.01 level of probability indicating that there is a significant difference in the pre-test, post-test achievement of slow learners.

Table 9 also clearly shows the improvement of performance of slow learners in the post-test. It can be definitely inferred the effectiveness of activity methodology and multi-media package over traditional teaching method.

Table 10 shows the pre-test, post-test scores of slow learners on self-confidence variable. The obtained 't' value of 6.28 is significant beyond 0.01 level of probability indicating a significant difference in the self-confirdence of slow learners. It has improved in the post-test as the mean score is 48.29 in post-test as compared to the mean score of 68.61 in pre-test (higher the score on self-confidence inventory lower is the self-confidence and *vice versa*).

Orientation and Training to Class Teachers of Slow Learners

Despite various reforms and interventions to improve the quality of education, it remains to be a key concern today. Teachers continue to rely on the traditional teacher-centred methods of teaching, which does not challenge the potentiality and creativity of the normal child, nor does it attract and allow the slow learners to participate in the teaching-learning process. Thus, making education lethargic and superficial, in turn, deteriorating the educational standards and also leaves the slow learners far behind, who cannot meet the demands of the society. Keeping this fact in mind, in this stage, the classroom teachers of slow learners were provided with the following:

1. *Orientation:* This was for 2 days, which included the illustrated lecturers on concept, nature, causes and characteristics of slow learners in addition to the methodology of teaching and treating the slow learners.

Table 10
Difference of Mean and 't' test Results on Self-confidence of Slow Learners in Pre-test and Post-test

Sl. No.	*Test*	*N*	*Mean*	*SD*	*SE*	*'t'*	*Level of Significance*
1.	Pre-test	32	68.61	13.8	2.44	6.28	p>0.01
2.	Post-test	32	48.29	12.00	2.12		

p>0.01 = Probability greater than 0.01 level of confidence

2. *Discussions:* They were held on various aspects of slow learners including classroom problems of slow learners, interventions to overcome these problems, and cooperation of parents and community to solve the problem was discussed.

3. *Training:* Training was given to the teachers in handling the multi-media technology, development and conduct of activities (active games) in addition to developing multi-media packages.

4. *Activity Guide Book:* Activity guide book was provided to classroom teachers, which contained numerous zero cost and low cost activities, which the classroom teachers can utilise while teaching different topics in science, in addition to a exhaustive list of sources (addresses), whom teachers can contact for procuring materials in science.

5. *Enrichment Material:* The teachers were also provided with extra material (enrichment material) on various topics contained in their environmental science textbook to give the teachers indepth knowledge. In addition, teachers were also provided with several transparency sheets, which the teachers can use during teaching of environmental science.

The teachers were highly motivated to participate in the programme which had developed their knowledge and skill in handling and teaching the slow learners.

Action Plan

In this stage, the students and teachers were asked to prepare their action plans.

The students were given assignment to list down the similar indoor and outdoor activities, in addition to supplementary reading in environmental science for the next 10 days.

The teachers were asked to prepare model lesson plans for their respective classes, including the teaching methodology, using active games and multi-media package, to slow learners along with the evaluation scheme.

Discussion of Results

The results of the study conclusively prove that the activity methodology and multi-media package is more effective than the traditional teaching method, because the innovative activity methods and multi-media package helped the slow learners to perform on par with the normal learners. The method adopted by the researcher can enhance the performance of slow learners, and bring them to the mainstream, in turn the schools can meet the demands placed upon them by the parents and society at large. The results of the study also shows that it is possible to build the self-confidence of slow learners through active games, which in turn enhances the prformances of slow learners to a great extent. Several studies conducted by researchers such as Hoge (1995), Mboya (1993), Garzarelli (1993), Marsh (1992), Puri (1987) and several others support this contention.

The curriculum designers and methodology planners have advocated differential instructional methodologies for the normal and slow learners. What instructional methodology and teaching techniques the teacher should use is left to the discretion of the classroom teacher. There cannot be a magic formula for enhancing the performance of slow learners. The teacher depending on the situation and background of slow learners have to devise the instructional methodology and teaching techniques.

The present research is an innovative attempt to combine the various available activity methods along with the careful development and combination of multi-media package to enhance the performance of slow learners which has helped them to be on par with normal learners and meet the demands of the society.

Educational Implications

Psychologists have studied the laws of learning extensively for half a century. Educators should be familiar with them in order that they may follow them as principles that are essential to providing effective instruction. These laws and principles of instruction are as applicable to slow learners as they are to normal children. There are no new, unique, or dramatic principles of instruction that are applicable specifically to slow learners. There is no easy method that will suddenly solve all the educational problems for this group. While methodology may be changed somewhat to enable slow learners to derive the greatest amount of benefit from the instruction, no completely new or unique practices are likely to be discovered. When instructing slow learners, it is essential that the children are ready to learn the particular concept or skill being taught.

The following are a compilation and summary of the basic principles that should be followed in organising a sound educational programme for slow learners.

A unique and differentiated methodology is recorded on the principle that every child has the right to have an equal opportunity in education. This does not mean that all children shall receive the same or identical educational experiences. It means that the educational experiences provided to each child will promote learning in the best way and to the highest degree possible.

- An adequate diagnosis of the children to be placed in the programme is essential.
- Programmes for slow learners should be planned to begin as soon as they enter school and should continue until the school believes that they are ready to take their place in the community.
- Teachers employed to work with slow learners must be interested in working with children who have these kinds of problems.
- The curriculum for slow learners should be developed in nature.
- Children should be grouped in school on the basis of similarity of characteristics and similarity of educational needs.
- Slow learners should be integrated with other children for those activities in which they can perform on a relatively equal basis.
- The slow learners should be considered an integral part of the student body.

- Slow learners should be permitted and encouraged to participate in extramural and athletic activities on the same basis as other students.
- Instruction should be at the child's level.
- Instruction should always start with the familiar and proceed to the unfamiliar.
- The learning activities must have value and meaning to the child.
- Repetition and practice should be used extensively to ensure learning and retention.
- Skills and concepts should be taught, insofar as possible, through the use of concrete, socially meaningful situations and materials.
- Instruction should be planned to encourage transfer.
- Instruction should be highly organised and taught systematically.
- When a new concept or skill is to be introduced, the initial step to be taken is to develop a need for it. It can then be developed through the use of socially meaningful, concrete materials. The second step is to provide the child with sufficient practice or repetition to make its use accurate and efficient. Third, numerous situations should then be introduced where the skill is required. This helps the child understand its broad application and also provides sufficient review to reduce the factor of forgetting.
- Activity method allows for creativity in the teaching-learning process. It is a technique of joyful learning adopted to slow learners to ensure the higher learning attainment, self-confidence and their alround development. Therefore, teachers should be oriented to adopt the activity-oriented methods of teaching through well planned pre-service and in-service training programmes.
- Activity guide books and enrichment materials enhances the teaching competency and self-confidence of teachers. Hence an adequate number of resource books/enrichment materials and activity guides should be made available to teachers.
- Intensive pre-service and in-service training programmes be organised for teachers to develop the skill of using activity method and handling multi-media technology, in order to empower them to become most effective teachers for slow learners.
- Efficient strategies should be developed to motivate teachers to develop low cost, zero cost materials and use activity based approach to slow learners.
- It should be made mandatory for every school to have a multi-media laboratory.
- Authorities should facilitate teachers to use multi-media technology and activity oriented methodology of teaching to slow learners apart from freedom and autonomy to them.
- Similar programmes could also be used for teaching other subjects such as languages, social sciences and mathematics, etc.

Soil and Soil Conservation

REKHA SRIVASTAVA*

Earth, the breeding ground for millions of lives—men, animals as well as plants—is indeed a miraculous existence. However, it is left to those deriving benefits from it to realise its significance. Soil being the basic resource that facilitates the survival of all, demands conservation. With the objective to impart scientific knowledge about soil, its types and conservation, to children of grade three onwards through the utilisation of new innovative means, this article emphasises upon the use of graphic Microsoft Power Point presentation. Results indicate that it can be used as a powerful and effective measure.

Introduction

As a small planet in the vast solar system, the earth is unique in a number of ways. It has life, it has water and it has a surface, which is continuously being renewed. Thousands of years ago before the spread of agriculture, huge acres of land were cloaked with dense forests, gentle flowing stream and open sky for birds to wander. Since then much of the forest has been cleared to make way for the fields, industries and houses.

It is pity that this unique earth is in grave danger. It has reached the points of no return. If we do not act immediately, this natural world of ours may soon perish resulting in human extinction.

For a good understanding and appreciation of our natural resources it is essential to enable our young children to deal with environmental problems they will face. Soil is our basic resource. It should be understood and protected if our country and our plants are to remain productive and strong. An unique approach is proposed here to impart this knowledge. This is an educational programme designed to teach the importance of soil, types of soil erosion, and conservation of soil.

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Children from 3rd standard onwards can benefit from this practice.

Unfortunately for children soil is always a dirt and clumsy thing. To convey the importance of soil in an interesting and informative way, teacher (the author) felt that a graphic Microsoft Power Point presentation based on thought-provoking story would be the best way to tickle the tender minds of the young children.

Who better than a worm can tell about the soil? The first hand information from the worm's mouth, whose life and breath is soil, would be the best way to convey the teacher's view. Keeping the abstract nature of the topic in mind, teacher decided to use together different methods like Microsoft Power Point presentation, outdoor activities, discussion, demonstration, etc. to make the learning process more meaningful and long-lasting.

Objectives

It is proposed to meet the following objectives:

1. To make children aware about the importance of soil for living things—without the soil we cannot survive on this planet.
2. To give children a scientific knowledge about the soil.
3. To encourage children to find out the ways and means to protect the top soil.
4. To inculcate the habit of soil conservation.
5. To encourage the children to participate in both classroom and outdoor activities and thus emphasising learning by doing.
6. To encourage them to develop writing skill in the form of poems or prose.
7. To encourage children to express themselves through drawings/ making posters/writing poems/ writing slogans.
8. To appreciate the top soil and its economic value.
9. To encourage them to become responsible citizens of their country.
10. To observe any improvement in learning outcome.

Approach

We all know that learning is more effective when all the senses are stimulated. Teacher planned the lesson in such a way that the children could understand this abstract concept in a very interesting and innovative way. Teacher collected the matter from different sources and put them together starting from a simple story to a very graphic description of a difficult concept (existence of soil on this planet).

Teacher introduced the lesson through the story of ancient India. Conservation is always a tradition in India. Over the centuries people of India have had a fascination and respect for their natural heritage. Conservation has been an integral part of the Indian way of life and it is greatly borne by the history and tradition. During three hundred years BC, Chanakya wrote in *Arthshashtra* that it was forbidden to cut trees for fire, destroy leaves, burn wood and kill animals because this would disrupt normal lives of animals and subsequently the delicate balance of nature.

Children with the help of the teacher came to the conclusion that all trees that stand in the forest not only provides fresh oxygen, fruits, timber and fuel wood, but they also act as soil binders that hold the soil tightly thus saving the natural water reservoirs present inside the forest. If there was more number of trees in any area then there were few chances of soil erosion of that particular place.

The teacher provoked the imagination power of the children by showing the Microsoft Power Point presentation in the form of very interesting stories of a tiny particle of *sammy soil*.

Activity

The above presentation was followed by an activity where the children were given the pictures depicting the *sammy soil* and then were asked to colour it. This way they were involved in the story of soil and learnt how different actions of man lead to either erosion or conservation.

Now the children were curious to know about the soil. Their eager minds were ready to absorb more information about the soil and its importance. The very amazing concepts the percentage of the soil on this planet was revealed to the children through a very graphic presentation on Microsoft Power Point.

Different concepts like *formation of soil, kinds of soil and different layers of soil*, were made clear to the children in a very interesting manner by making use of excellent material available on this topic. Children are always fascinated by animal kingdom so they grasped this information involuntarily and practiced the following activities:

I hear,	I see,	I do,
I forget;	I remember;	I understand

This was followed by an outdoor activity on soil erosion. Here the teacher involved the students in making models of hill from the soil available in the school. The children were asked to create a rainfall on the model and also on the rock garden which is there in the school. The children observed how the soil from this model which had no plants or bunds was washed away and that of rock garden remained in its place. The children were asked to think about the reason. Children themselves gave the answer and the concept of soil erosion and conservation was easily absorbed in their minds.

Now the teacher took the children back to the computer presentation and more information on soil erosion and conservation was imparted. The teacher elaborated the uses of grass waterways, counter-forming, counter-terracing in plains, etc. A poem on soil *The Surprise* impressed the children – how beautiful life is created from this lowly soil.

At this stage the children were eager to know more about the soil. The teacher again showed a presentation where the abstract uses of the soil were shown in a chart form. This was followed by a discussion between the children and the teacher. Here their minds were fertile to receive the seeds of abstract knowledge—soil as gas exchanger, greater integrator, etc. Their response showed that these concepts were embedded in their minds.

After this the children sang the song *Old McDonald had a pit*, describing the different colours of the soil. *Music always appeals to children and it* is a known fact that the more the number of the senses involved in learning the more it is clearer and permanent.

Now the children were shown some small poems with beautiful pictures written by young poets. The teacher inspired the children to compose poems related to the topic. Posters and slogans written by the children expressed their inner feelings towards disasters caused by erosion and the need of the hour for conservation.

Evaluation

Certain evaluation procedure was evolved to check what children had grasped. For example

1. Soil Chain: Different pictures of living and non-living things on a piece of paper was given and children were asked to make a soil chain (Concept: all things are directly or indirectly related to the soil chain).
2. Different Agents of Soil Erosion: Children were given the pictorial worksheet depicting the various methods of the soil erosion. They had to write the different ways of soil erosion.
3. Riddle: In the form of a skit *Guess Who Am I* was enacted by the children in the class based on the knowledge acquired from this lesson, e.g.,
   (a) I am grown in rows around the farmers field and even around your house to protect soil erosion, who am I?
   (b) I am made on a hilly region to protect the top soil being washed away, who am I?
   (c) I am the best method to reduce soil erosion in farmer's field, who am I?

Result

The participation of the students was total. Each child came with a different idea of the soil chain thus showing how well they have understood the concept.

Even the slow learners and the children who have difficulty in expressing through language were able to convey their answers through pictorial representation and one word answer.

Almost 80% of children were able to compose a small poem appreciating the importance of soil. Their imagination and originality is worth-appreciating.

Children were thoroughly in riddle play. On one hand they enjoyed enacting who am I questions and on the other hand all were eager to answer. Children themselves made more riddles.

The result of the multiple choice question shows that 75% children grasped the knowledge very well

(18 marks out of 20) and the rest of them (15 marks out of 20) were in average grade.

Conclusion

This innovative method comprising of Microsoft Power Point presentation, outdoor activities, discussion and demonstration proved to be very powerful and effective and left a long-lasting impression in the minds of the children. Where charts, models and blackboard connot show what soil is really like, the Microsoft Power Point presentation very vividly illustrated all basic ideas of the topic. Children understood the importance of the soil for survival of all living beings. They got first hand experience of soil conservation through various activities which have in turn helped in developing a habit of caring for plants. They have discovered their latent talent of writing and drawing. They have come to conclusion that man's activities have increased soil erosion. *Protect the Soil* has become the most important call of the nature. This has led the children to believe that they could become responsible citizens of the future. The teacher has observed that through this practice of teaching, there has been a definite improvement in the performance of the children. They are convinced that soil conservation is a very important factor for their survival.

In the age of *Information Technology* revolution where all schools are equipped with computers, making Microsoft Power Point presentation does not involve much expense. Making models of the soil hills in the school was free of cost. There was slight cost involved in taking print-outs and xeroxing but with school having a printer and xerox machine the cost becomes minimal. Overall this has been a low cost-high result lesson.

Some of the creations by children and the worksheets used by the Researcher

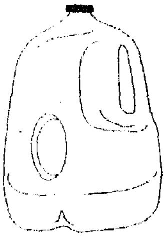
Old McDonald had a pit	*Soil Poem*
Old McDonald had a pit, E-I-E-I-O	
And in this pit he had some soil, E-I-E-I-O	Soil
With a dig dig here and a dig dig there	Dry, Cold
here a dig, there a dig, everywhere a dig dig	Good for plants
Old McDonald had a pit E-I-E-I-O	Brown, Rooty
Id McDonald had a pit, E-I-E-I-O	Loam
and in this pit he had some horizons, E-I-E-I-O	
With some color color here and	Soil
some color color there	Dry, Soft
here some color, there some color,	Plants live there
everywhere some color color.	Black, Rocky
Old McDonald had a pit, E-I-E-I-O	Humus

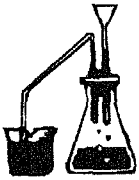
Worksheet
Draw a flow chart back to the soil for ...

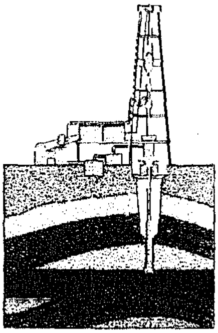
butter
wool blanket
ice cream
leather shoes
electricity
vegetable oil
farmer's bank account
well water
chocolate cake
glass plate

plastic cup
book
brick house
skateboard
toothbrush
turkey sandwich
egg
blue jeans
candy bar
bicycle

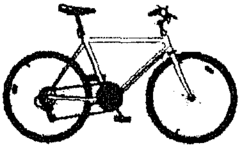
table
bubble gum
baseball
pickle
cereal
rope
road
apple
soda pop
pencil

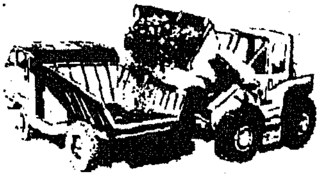


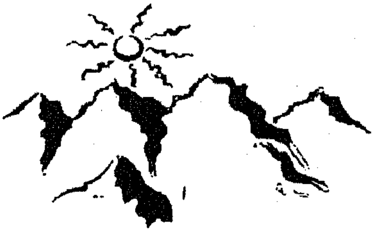




plastic jug ⇨ oil extraction ⇨ old decay of plants and animals ⇨ oil under layers of rock and old soil



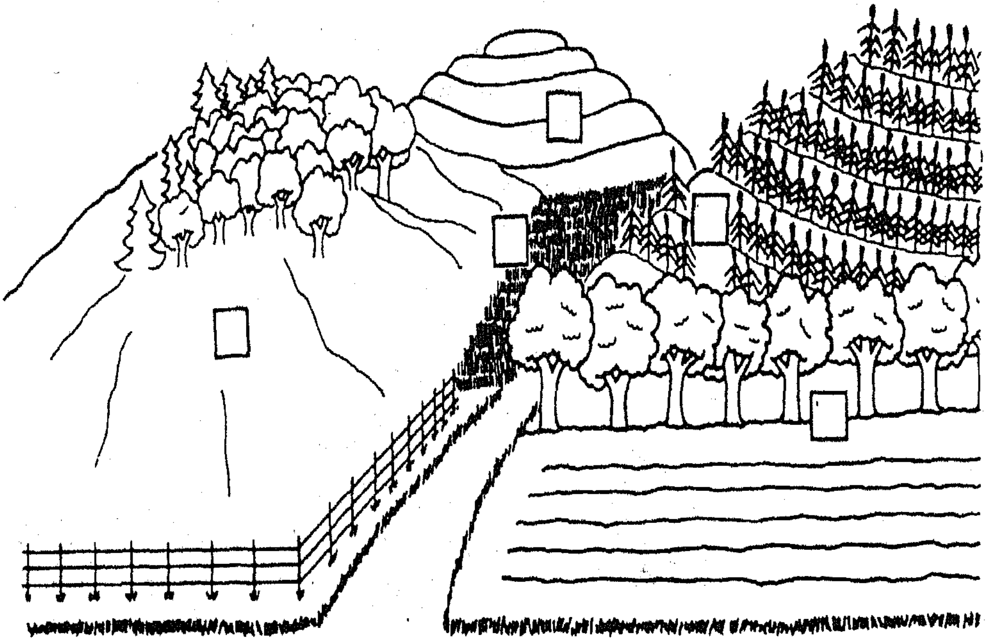




bicycle, metal ⇨ extracted from rocks ⇨ weathered rocks become soil

Worksheet

Erosion Control Practices

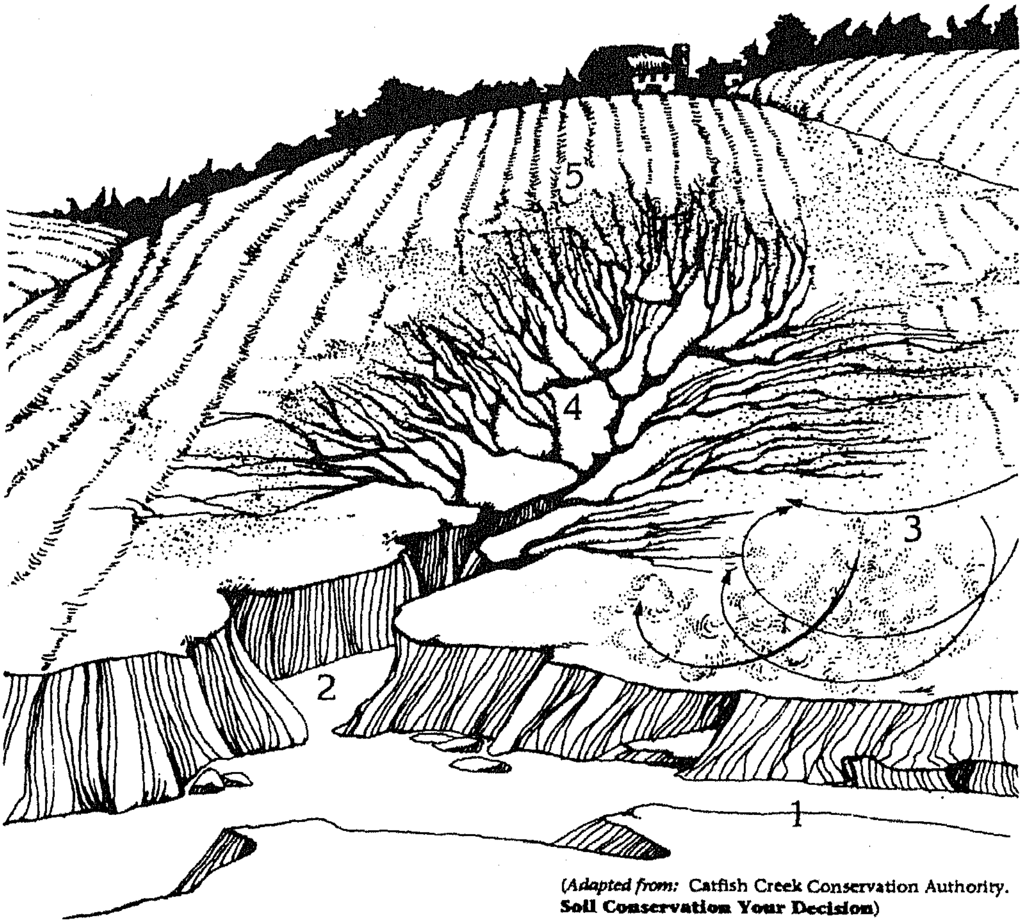


Farmers use several methods to conserve soil. Match the number of practices below in the corret box in the picture.

1. Contour Planting: plant crops around the curve of a hill rather than up and down the hill.
2. Terraces: wide ridges that go around a hill to prevent water from rushing the hill too fast.
3. Forest and Grass Areas: keep steep hillsides in trees or grass rather than clear for cropland.
4. Grassed Waterways: plant grass and don't plow low areas in a field where water usually runs.
5. Windbreak: rows of trees planted to slow down the wind and prevent soils from blowing.

Worksheet

Soils on the Move



(*Adapted from:* Catfish Creek Conservation Authority. **Soil Conservation Your Decision**)

Identify which area is:

_____ wind erosion
_____ gully erosion
_____ rill erosion
_____ streambank erosion
_____ sheet erosion

Utah Agriculture in the Classroom

Self Composed Poem on Soil

Soil, Soil
Please don't go away
Fields are waiting for you.

Soil, Soil
Please don't go away
We are waiting for your help.

Soil, Soil
Please don't go away
Plants need to grow from you.

Soil, Soil Please come
Back here very, very soon
I will be conservative and careful.
By Ritvik

Soil, Soil everywhere Soil
One earth it acts as a foil,
There are different types of Soil,
Brown, Black, Yellow, Red,
It gives the farmer bread.

But, we make it spoilt,
By seepage, industries and factories,
Which causes many diseases,
And leave great miseries.
By Ashesh

Using Group Study Method for Enriching the Academic Achievement

AVDHESH KUMAR GUPTA*

In keeping with the difficulties of learning, various teaching-learning strategies are being evolved to ensure quality education of the students. One among them is the group study method which this article attempts to assess in order to determine its effectiveness. This method was applied to a group of Class X Tibetan students. The final evaluation showed remarkable improvement in the achievement of the students by means of this method.

Group Study method/Peer learning method

Innovator has been working as a Principal in Central School for Tibetans and had persistently noted that inspite of providing all facilities to the Tibetan children and the best efforts made by administrators and teachers, the performance of Class X students was not satisfactory and to the expectation of the authorities. Being Head of Institution, this problem had ever been pinching to the innovator.

Central Schools for Tibetans are working under Ministry of Human Resource Development, Government of India. These schools were opened for Tibetan refugee children, i.e., children of Tibetan refugees who migrated from Tibet to India in 1959 along with Dalai Lama. In Tibet there was no formal education. Only religious education was imparted which was based on reading, writing, memorisation of religious books and dialectic discussion. Still Tibetans stress much on religious education. When they migrated to India, their spiritual leader Dalai Lama thought of modern education for their children. He appealed to the then Prime Minister, Pt. Jawahar Lal Nehru. Consequently these schools were opened for the education of the children of Tibetan refugees in 1961. The main aim of these schools is

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to impart modern eduction along with cultural education to maintain their identity as Tibetans. These schools are affiliated to Central Board of Secondary Education, New Delhi.

Tibetans are religious in nature. It can be observed from their lifestyle. They are seen chanting mantras, performing morning/evening prayer. For every important activities of life, they always consult lamas in the monestry. They have strong belief in tantrism and reincarnation. Dalai Lama is an example of reincarnation. They are conservative in nature.

Following characteristics were observed in Tibetan students of Central Schools for Tibetans:

1) They are introward, shy in nature and never put-up their problems in the class.
2) Their method of learning is based on memorisation and craming instead of understanding and application.
3) They give importance to cultural activities, games, art and craft.
4) Their socio-economic status is low.
5) They have strong faith in religion and tantrism. They are conservative.
6) Their livelihood is based on petty business of sweater selling, carpet weaving, etc.
7) Their parents are illiterate who are not conscious of education of their children. Hence these students do not give much importance to education.
8) Their parents go for petty business leaving their children all alone at home or at hostel. Hence they are unable to look after the study of their children.
9) Generally Tibetan parents like to put their children in hostel. So most of the Tibetan students are boarders.
10) Tibetan children do not have good job opportunities after getting education.

I conducted research in 1998 and compared these students with Indian students of Kendriya Vidyalayas and other Public schools of CBSE, with respect to their academic achievement, intelligence, socio-economic status and adjustment. I found that–

1) Academic achievement of Tibetan children was much lower in comparison to that of Indian children.
2) Socio-economic status of Tibetan children was lower in comparison to Indian children.
3) Tibetan students had poor adjustment in the school in comparison to that of Indian students because Tibetan students study in Indian environment from Indian teachers generally and Indianised education.

School holds the responsibility of parents also. Schools does not get any co-operation regarding education of the children from Tibetan parents. School arranges counselling and guidance programme to the students. School arranges remedial teaching to these children before and after school hours. Besides, remedial teaching is imparted during winter vacation before board examinations. Frequent tests are conducted. Self study is also properly supervised. Government of India has provided all facilities to these schools like well-equipped Science Labs, Junior Science Labs, Resource Centre, Minimum Level Learning Programme, Audio Video Teaching Aids, Computer Lab, Overhead Projector, Language Lab, Social Science Lab, Rich Library, Music Dance facilities, Games facilities etc. Inspite of above facilities I obsreved that these students were academically weak. It is also open fact that performance of any Institution is gauged by the result of Board examination. Being accountable for academic performance of the children, all the officers including Secretary, Education Officers, Principal, Teachers make all efforts for academic excellence. Being a Principal of the institution, I guided these students time to time how to do proper study, how to acquire good performance in examinations and arranged different academic activities for academic excellence.

Generally, Class XII students get mature by this time, and they study and get good result in the examination. But it is not so with Class X students. So I thought of improvement of Class X students' performance. I observed that Class X students were heterogeneous in academic performance. Some students were very good in study and some were very poor. So I thought of implementing group study/peer learning method in Class X. I selected the month of January and February for this purpose because by this time syllabus of all subjects is finished, revised and half yearly examinations are also conducted.

Topic of Innovation

Peer learning/Group study method among the students of Class X appearing in board examinations.

Objectives

1) To improve academic performance of the students.
2) To remove shyness from the students.
3) To inculcate confidence among them.
4) To inculcate the habit of mutual co-operation among the students.
5) To inculcate the habit of constructive discussion among the students.

Population

Class X students were selected for innovation because these students were found immature and careless. Second, result of Class X examinations in the past years was not found satisfactory and to the expectation of authorities.

Time

I selected the month of January/ February for implementing this project because by this time syllabus in all subjects is covered and the students revise the subjects through sample papers etc. second, half yearly examinations are over, through which performance of the students is assessed.

Method

I analysed the results of half yearly examination and unit tests conducted in the classroom teaching since April to December. I observed that some students secured good marks in examination as well as in tests. Some students secured poor marks in the beginning of session but gradually they improved by December. Some students secured always poor marks since beginning. I arranged personal meeting with each and every student individually who secured always poor marks and came to know the fact that most of the students failed in Maths, Social Science and English. They had fear from the teachers in the class, so they could never put up their problems in the class. Even fundamentals were not clear to them, so they had fear to ask their problems. Some of them were shy in nature. When I observed them in group I found them having good discussion with their peer groups. Even shy students were doing thorough discussion with the peer groups. So, I decided to implement peer learning method.

I arranged a meeting with all the students of Class X and explained my plan of group study. It was made clear to them that this method of study will be beneficial not only to the weak students but also to the bright students. Weak students would get opportunity to put up their problems without hesitation and can get their problem solved. In this way their knowledge will be enriched and can get good marks in the examination. Bright students would get confidence in them and get rid of examination fear. It was also made clear that neither any teacher nor the principal will be present during discussion. They will discuss with the groups only. Thereafter I sought their opinion of participation in group study. I observed that everybody was very much eager to participate in group study.

I explained the students that groups of 10 students will be formed. Each group will sit in separate classrooms. Before attending group study, students will revise the syllabus through the question bank, sample papers and find out their problems during their self study time. They will put-up their difficulties in the group during group study. The students, who know the answer will solve the question. In the group study, problems from the particular chapters of particular subjects which have already been decided will be discussed.

Four groups each of 10 students were formed. Groups were so formed that each group was having bright students, average and poor ones.

Result of half-yearly examination revealed that most of the students failed in Maths, Social Science and English. Therefore only three subjects were taken for discussion. Project was undertaken for a month, i.e., 4 weeks for one hour daily.

Time table was made as under:

Monday-Tuesday—	Maths
Wednesday-Thursday—	Social Science
Friday-Saturday—	English

Whole syllabus was divided in four weeks programme. Students were asked to prepare particular chapters from textbooks/notes already prepared and to revise them through sample papers. Wherever they find any problem, they should note down the questions to be asked in group study. They were given 2 days for study.

After 2 days, the students attended their groups in separate classrooms. I supervised their activities from outside only to ensure that they are going in right direction. Casually I entered in the room and interfered in their group discussion. All the students brought number of problems which they could not do in self study.

Students put up problems in the group and other students solved the problems with confidence to the entire satisfaction. Students in between interrupted and had discussion regarding problems. When one problem was over, next problem was discussed. Sometimes one student could not solve the question, it was attempted by others. In this way it continued. Sometimes the problems were so difficult which could not be solved by anyone, they were put to my notice. In Maths, I tried to solve them. In English and Social Science, the students asked these problems to the teachers after group study. On next day students put-up problems and discussed on other chapters. This method continued for a month. In this method it was observed that all the students were very much attentive to the problems and participating activity.

The weak students also tried to attempt the problems which were put-up during group study. Almost all the students attended the programme daily without fail. Some got excuse on being sick. After a month, tests were conducted by the subject teachers in the class. It was found that there was remarkable improvement particularly in these three subjects, i.e., English, Social Science and Maths. Improvement in performance of weak students was much more than that of intelligent ones. But improvement was observed in all the students.

Problems Faced

Following problems were faced during the project:

i) In the beginning some weak students were hesitant to ask problems but gradually when the environment was created, everyone participated actively and put-up their problems.

ii) Some of brilliant students were afraid of wastage of their time because they had misconcept in their mind that they would solve the problem of weak students only and gain nothing. But when it was implemented they realised that they also benefited and gained confidence.

Conclusions Drawn

i) It revealed from the statements of marks of half yearly examination and tests conducted after one month of group study that academic performance of not only weak students but also bright ones improved.

ii) The students who never asked the problems in the class, participated actively in the group discussion, problem asking, problem solving in group study. Hence their shyness was removed to some extent.

iii) All the students participated actively in group discussion. Hence they got confidence in them.

iv) When the problems were put-up, other students tried to answer them and helped each other. Thus mutual co-operation was developed among them.

v) When the problems were discussed, other students argued, explained and discussed properly. Thus habit of constructive discussion was developed among students.

Thus all the objectives of group study/peer learning were achieved.

Educational Implications and Utility For Students

Group study is very beneficial particularly before two months of commencement of Board examinations to every student. Sometimes the students cannot/hesitate to ask their problems in the classroom teaching. The same can be put-up/discussed thoroughly in group study. During revision through sample papers and past question papers, some difficult problems are left out unsolved, which can be discussed/solved in group study. Thus group study/peer learning method is highly beneficial to all the students.

This project requires no kind of financial implication. It requires time, dedication, will-power of the educators and motivation to the students.

Preparation of an Instructional Package for Art of Healthy and Productive Living

N. Sethumadhavan*

Development of aesthetic sensibilities, positive social attitudes, healthy physical existence, i.e., allround development of personality is the need of the hour besides scholastic achievement. School as an institution is entrusted with the responsibility to achieve these. Keeping this in view, this article attempts to initiate a step towards framing an institutional package including various types of activities for art of healthy and productive living in the classroom. It has been developed for standard V students from DIET school lab. An observation schedule was used to assess its usability. It indicated remarkable positive results.

Introduction

In ancient times education was imparted for physical, mental, moral, social and spiritual development of the child. The Gurukula system taught yoga, physical education, spiritual education and aesthetic education along with reading and writing. Ample opportunities were given to children to live along with community and serve them. This in turn developed a consciousness of selfless service to human kind. But later on the education system underwent a complete change during the British rule. Education came to be regarded as learning of 3 Rs, which they considered to be sufficient.

Four great Indian philosophers of 19th century highlighted the importance of certain ideas, which was in our traditional system of education but not in the system of that time. Basic education of Gandhiji, integral education by Aurobindo, Santhinikethan by Tagore and education for personality development by Swami Vivekananda were the attempts in this direction. The intention was the total development of

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the child—body, mind and spirit. According to Swami Vivekananda, 'Education is the manifestation of perfection already in man. But our academicians ignored this aspect of total development and concentrated on academic subjects.'

The Education Commissions after independence recommended value education and moral education in addition to the academic subjects. The textbook writers claim that value education and moral education are included in the curriculum, but is hidden. However, the truth is that, it always remained hidden and was never discussed or attained by the children. Though work experience or Socially Useful Productive Work (SUPW), music and art education were included in our syllabus, their actual objectives were not achieved in the classroom for various reasons. They failed to recognise the relation between attitude towards work and work experience, physical education and elements of yoga, aesthetics and art education. This resulted in 'emotional illiteracy'.

The West have now included emotional intelligence in their curriculum. Value-oriented education, yoga education are also taught in their institutions. Due importance is given to multiple intelligence such as spatial, bodily-kinaesthetic, musical and intrapersonal intelligence. They utilised eastern instructional technique, which they consider to be more effective to achieve intrapersonal and emotional intelligence.

The concept, Art of Healthy and Productive Living mentioned in the *National Curriculum Framework for School Education*–2000, is a programme, which integrates art eduction, health education, physical education and work education. It is a programme capable of nurturing different life skills, positive behaviour, social cognitive skills and self-control.

Need and Significance of the Study

All-round development of personality is the ultimate goal of education and therefore learning experiences provided in school should contribute towards the achievement of this end. The scholastic and co-scholastic areas are prescribed in the curricula with this intention. Physical education, work education and art education offer more flexibility, freedom of organisation and opportunities for natural and creative expression. At the primary level instead of segregating work education, physical and art education, National Curriculum Framework-2000 put forward the integrated approach—Art of healthy and productive living. This concept appealed to the investigators. Many of the students in our classroom are bright, but poor in social development. The curriculum for co-scholastic areas such as work education, physical education are neither inspiring nor attractive. National Curriculum Framework has rightly put in that the major factor leading to the half-hearted implementation of these areas could be lack of availability of proper motivation and evaluation procedures among teachers. The present curriculum sidelined the emotional, moral and spiritual development of children. This may be one of the reasons for idleness, truancy, depression and anxiety seen among our youth. A need for restructuring our curriculum especially in co-scholastic areas seems imminent. The development of self-confidence, self-awareness and self-esteem in children is the need of the hour. Art of healthy and productive living in the National Curriculum Framework can help to solve problems and plan a better way of solving cognitive tasks to a certain extent. No attempt has been made so far in this regard. Under these circumstances investigator made an attempt to formulate integrated activities in accordance with the National Curriculum Framework and tried to find out its effectiveness.

When need-based life activities are provided to the students that too in an interesting way which are joyful to the students, several competencies and qualities can be developed. The development of certain qualities may be very gradual. But certain others will be easily observable and measurable.

Objectives

1. To frame art of healthy and productive living activities for Standard V.
2. To develop the expressive capacity of the children.
3. To develop cheerfulness.
4. To increase energy level in children.
5. To develop confidence and initiative.
6. To develop drawing skills.
7. To develop rhythmic sense.
8. To increase the concentration.
9. To develop an urge selfless service.

Hypothesis

Instructional package for art of healthy and productive living is effective for the students of Standard V.

Methodology

Evolution of Plan

Investigators referred to the National Curriculum Framework, readings on art education, physical education and work education. Curriculum mentioned in the Framework was given the prime importance in designing the activities.

The learning activities were planned considering the cultural background of the children and available resources. While preparing the activities, the competencies for students of Standard V were taken into consideration. Activities were woven on certain themes. Only themes, which are very familiar to the children, were selected.

The investigators felt that a harmonious blend of the various qualities facilitates healthy and productive living. Among the various qualities like cheerfulness, rhythmic sense, drawing skill, energy level, concentration, confidence and social service were selected for the study considering practicability, time and feasibility for observation.

Target Group: Thirty-six students of Standard V from DIET lab school were selected.

Students from the DIET lab school were selected for the study on the following reasons:

1. The investigators could implement the intervention package by themselves.

2. The teachers who were selected to observe the students could be oriented easily.
3. The investigators could interact with teacher as school is in the same compound.
4. Time schedule of the implementation of the programme could be easily arranged.

Tools and Techniques

An observation schedule (Appendix 1) to assess the selected qualities was prepared. A five-point rating scale was used for this purpose. The numerical weightage assigned to the description of qualities were:

1.	Poor	1
2.	Below average	2
3.	Average	3
4.	Above average	4
5.	Good	5

A pre-test was conducted to assess the initial position of the qualities. Five teachers helped in this process. The pre-test scores of the students were considered as the initial level of their attainment in seven selected qualities. Investigators felt the need to improve these qualities by implementing the art of healthy and productive living package.

Package

The action plan consisted of 8 packages. All the packages were based on specific themes. The themes selected were Onam, Temple festival, celebration of 'Bharatheeyam' and welcome to a distinguished guest. Other specific packages were on physical education, yoga, music and art.

A two months' period was given to conduct the action plan for the packages. There were two sessions in each week, the duration of which was one hour and fifteen minutes. Monitoring the programme along with the feedback helped in modifying the packages.

The following are the packages:

Package I: 'Bharatheeyam'

Expected outcomes:

The pupils,
1. develops the skill in collage making.
2. develops the skill in group singing.
3. develops skill and attitude in making National
4. Flag. Performs synchronised display.

Theme: Celebration of 'Bharatheeyam' – Performance of cultural programmes of different States of India.

Plan: Since the celebration of the day necessitates proper planning, the first part of the programme is planning.

Session I

First day: Planning and rehearsal. Students are given opportunities to see video clippings, slides, photographs and articles of cultural variations of different states so that they observe and acquaint themselves with the differences in dress, dance forms and music. Popular songs and dances of different States are taught to the children. They are also required to make the National Flag for the display.

Session 2

Second day:

Activity 1: Opportunity is given to the students to air their views of the States they had visited and the lifesltyle of the people.

Activity 2: Performing dance forms of Punjab, Manipur, Tamilnadu and Kerala.

Activity 3: Practice songs in different languages.

Activity 4: Students are formed into five groups. Each child is given a stencil of India and they prepare a map of India using different colours, sand and fevicol.

Activity 5: The song 'Sare Jahan Se Acchha...' sung and it ends with the synchronised display by the children.

Package II: 'Onam'

The pupils,
1. develops the skill in making Rangoli.
2. develops the skill of creating floral carpet.
3. develops relaxation techniques.
4. develops interest for participating in games.
5. develops co-operative attitude.
6. develops feeling of affection.
7. develops better self-control.

Theme: 'Onam' is the harvest festival of Kerala. Everybody celebrates it with pomp and gay. It heralds a heightening of cultural activity among the people. Onam is celebrated in memory of the Asura King Mahabali. It is believed that he comes to meet his subjects on the day.

Plan: Students are divided into six groups. Each group acts as a family in their own way. One child is given the role of the King Mahabali.

Activities:

Family 1: Construct a floral carpet (Pookkalam) with variety of flowers. Mahabali visits the family, praises them and moves to the next family.

Family 2: Make a Rangli using rice powder with 'Thrikkakara Appan' at its centre.

Family 3: Sing Onam songs in accompaniment of 'Ona-villu'.

Family 4: Performs 'Kaikottikkali'.

Family 5: Sing harvest song in groups.

Family 6: 'Onakkali' (Pulikkali), a usual game at the time of Onam.

After visiting each family Mahabali addresses all the villagers. Mahabali sings an 'Ona-pattu' and asks people to sing in unison. Mahabali teaches a game, which he says, was very popular in his time. Next he teaches them how to relax by lying in *Savasana*.

Package III

Expected outcomes:

The pupils,
1. recognise musical notes.
2. recognise 'Thala', 'Sruthi' and 'Laya'.
3. develop skill of group singing.
4. develop the skill in Yoga.

Theme: Music and Yoga.

Activity: Simple Yogasana suitable for the children of Standard V are given. Standing position—Namaskarasana, Padahasthasana. Lying—Merudandasana, Bhugangasana, Marjarasana. After that breathing exercises in Vajrasana position. Relaxation is given in Sukasana posture.

The students practise the basics of Karnatac music for ten to fifteen minutes. After this, group songs and patriotic songs are taught. Children sing it joyfully.

Package IV: Temple festival (Pooram)

Expected outcomes:

The pupils,
1. learn breathing techniques.
2. develop the rhythmic sense.
3. develop skill in role play,
4. develop skill in drawing.
5. develop skill in clay modelling.

Theme: Temple festival

Activity 1: Simple exercises are given for warming up (with the background of music).

Activity 2: Breathing exercises are given – Sukasana posture.

Activity 3: They are asked to visualise a scene of Temple festival, which is very familiar to the students. They visualise the procession, which is an important part of the festival. Now children draw the picture of the procession. The picture they have drawn is displayed in the classroom.

Activity 4: The 'panchavadyam' cassette is played and the children enact a Panchavadyam scene. A folk song is played and children dance along with this.

Activity 5: Relaxation is given to the children.

Activity 6: Children make model of an elephant with clay and decorate it. These toys are given to children of orphanages.

Package V

Expected outcomes:

1. To increase energy level of the child.
2. To increase concentration.
3. To increase self-control.
4. To increase aesthetic sense.
5. To increase creativity.
6. To increase the skill in drawing and painting.

Theme: Yoga and drawing.

Activity: Simple Yogasanas suitable for the students of Standard V are given.

Standing – Vrikshasana, Padahasthasana, Sundalasana.

Sitting – Sukhasana and Yogamudra.

Lying – Noukasana, Bhujangasana and Salabhasana.

Relaxation in Savasana is given. After that a model—flower-vase with natural leaves flowers, fruits is placed. Students observe it and then sketch and paint it. Display it in the classroom.

Package VI

Expected outcome:

The pupils
1. develop skill in bookbinding.
2. develop rhythmic sense.
3. develop motor co-ordination.

Theme: Bookbinding.

Activity 1: Warming up exercises are given in tune with music. After it physical exercises for gross and small muscles are given.

Activity 2: Students are asked to dance rhythmically to the tune of music. Relaxation is given and then students are asked to sit in groups. After giving them necessary materials directions for bookbinding are given. The bound books are given to the needy children.

Package VII: 'A Distinguished Guest'.

Expected outcome:

The pupils,
1. develops the rhythmic sense.
2. develops better muscular co-ordination.
3. develops self-confidence in performing arts.
4. understands the importance of Yoga practice.

Theme: A distinguished guest (role played by a student) is invited to the school to address the students. They welcome the guest and conduct various cultural programme to honour him.

Plan: The detailing of the programme is done in discussion with the children well in advance. Programme is charted out in which each child has a role. Since the whole thing is a dramatisation children are given the option to select their roles.

Activity 1: To receive the honourable guest a guard of honour is given.

Activity 2: Next, there is a silent prayer followed by Yogasanas.

Activity 3: The song 'Jaya jaya jaya janmabhoomi ...' is sung rhythmically to the accompaniment of drums.

Activity 4: There is a display by the students accompanied by the song 'Vande mataram'.

Activity 5: The distinguished guest talks about the programme and praises it. He asks the students to sketch any scene which appealed to them from the day's programme (as home assignment).

Analysis

The pre-test and post-test scores were tabulated. All students were observed by five teachers on the selected components. The total score in each component was calculated by adding the rating given by five teachers. The total score of each component varies from 5 to 25. The pre-test and post-test scores were tabulated.

The analysis was done using two different methods–

(1) The percentage of increase in score of each component of the individual was calculated.

(2) The Critical Ratio was calculated in order to find out whether there is any significant difference between tghe scores of pre-test and post-test. The details of the analysis are given below.

Test of Significance Difference in Means

Components		*Mean*	*Standard Deviation*	*Standard Error*	*Critical Ratio*
Cheerfulness	Pre-test	15.75	1.647	0.491	8.49*
	Pre-test	19.92	2.442		
Rhythmic Sense	Pre-test	15.97	1.674	0.481	5.89*
	Pre-test	18.81	2.354		
Drawing Skill	Pre Test	15.61	1.58	0.39	3.66*
	Pre-test	17.06	1.76		
Energy Level	Pre-test	16.11	1.680	0.420	8.26*
	Pre-test	19.64	1.930		
Concentration	Pre-test	16.31	2.040	0.560	4.27*
	Pre-test	18.72	2.690		
Confidence	Pre-test	16.39	2.230	0.610	3.76*
	Pre-test	18.72	2.950		
Social Service	Pre-test	15.89	2.050	0.510	4.69*
	Pre-test	18.33	2.340		

*Significant at 0.01 level

Findings

Cheerfulness: Out of 36 students selected for the study 30 students showed increase in cheerfulness, i.e., 83% of the students under the study showed increase in cheerfulness. The average increase in cheerfulness is 16%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates that the increase in cheerfulness is significant. In *Rhythmic Sense:* out of 36 students selected for the study 27 students showed increase in rhythmic sense, i.e., 75% of the students under study showed increase in rhythmic sense. The average increase in Rhythmic sense is 11%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates that the increase in Rhythmic sense is significant. In *Drawing Skill:* Out of 36 students selected for the study 26 students showed increase in drawing skill, i.e., 69% of the students under the study showed increase in drawing skill. The average increase in drawing skill is 6%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates skill is significant. In *Energy Level:* Out of 36 students selected for the study 29 students showed increase in cheerfulness, i.e., 81% of the students under the study showed increase in energy level. The average increase in cheerfulness is 14%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates that the increase in energy level is significant. In *Concentration:* Out of 36 students selected for the study 21 students showed increase in concentration, i.e., 58% of the students under the study showed increase in concentration. The average increase in concentration is 7%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 Level. This indicates that the increase in concentraion is significant. In *Confidence:* Out of the 36 students selected for the study 23 students showed increase in confidence, i.e., 63% of the students under study showed increase in confidence. The average increase in confidence is 9%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates that the increase in confidence is significant. In *Social Service:* Out of 36 students selected for the study 23 students showed increase in social service, i.e., 63% of the students under the study showed increase in social service. The average increase in social service is 10%. Since 't' value is greater than 2.58, the difference of means is significant at 0.01 level. This indicates that the increase in social service is significant. There is significant increase in score for all the seven components under the study. Hence, the hypothesis, instructional package for art of healthy and productive living is effective for the students of Standard V is accepted.

Discussion

The investigators, being teacher educators, who are interested in this area, would like to interpret the results obtained in the study as follows:

Cheefulness: Increase in cheerfulness may be due to the opportunities given to the child for self-expression in a free and pleasant environment. Several opportunities in the package have been provided for reducing the stress like yoga. This could produce neurotransmitters that make comfortable feeling in the child.

Rhythmic Sense: Every child has rhythmic sense. It can be promoted by giving enough exposure. The package provides ample opportunities for appreciating music along with body movements.

Drawing Skill: Chances to think creativity in a free environment with concentration facilitates aesthetic sense and hence the drawing skill of the child increases.

Energy Level: The children become more energetic when their general health and strength increases. The breathing techniques used in this package increases the vital capacity of lungs, oxygenation of blood and elimination of toxins from the body cells. Simple pranayama practice made them more energetic.

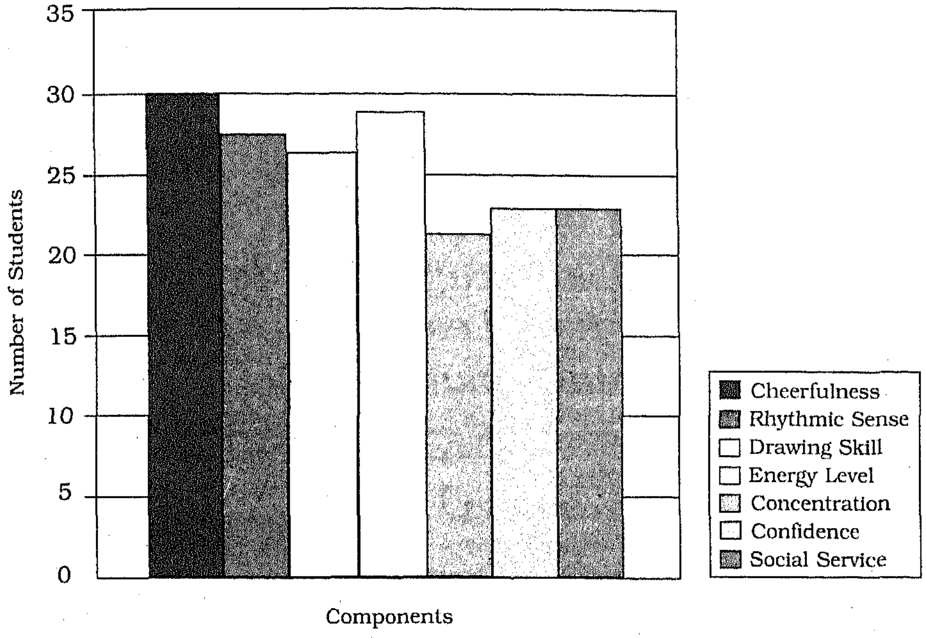
Conentration: Simple meditation gave the students more concentration.

Confidence: To develop confidence and initiative in children the programme provided role-play and dramatisation. Children volunteered to do different roles and this aspect is responsible for developing self-confidence in them.

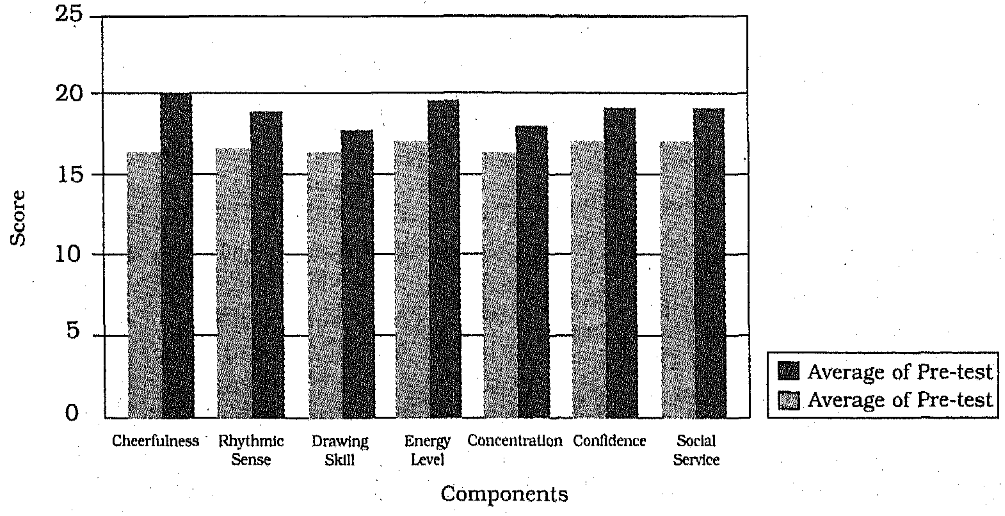
Social Service: Chances are given to the children to clean public places, to donate the article such as toys, books made by students to other institutions. Such donations bring happiness to children and inspire them towards selfless service.

Recommendations

1. Since the package was found to be effective, similar packages are to be prepared in print media and in audio-visual media.
2. Teachers should be given an awareness of Art of Healthy and Productive Living programme and intensive training in areas like Yoga, Music and Art. Posters addressing the teachers may be prepared and displayed in teacher education institutions.
3. Parental awareness will also aid in implementing the programme.
4. The programme may be extended to upper primary classes also.



Number of Participants showing Increase in Different Components



Increase of Score in Different Components

Zone of Proximal Development through the application of Vygotskian Principle

An experiment with Scaffolding, Reciprocal Teaching and Shared Learning for Learning Mathematics

Geetha K.*

In the present educational scenario, the child is no more passive seeker of knowledge. Vygotskian educational theories believe that the learning of child is influenced by socio-cultural environment. With the help of a questionnaire administered to Class VIII students an attempt is made in this study to highlight the importance of methods such as, scaffolding, assisted discovery, reciprocal teaching, etc. in the acquisition of mathematical concepts. The results highlighted the importance of learning through activity with reference to the social context.

Introduction

Education is a human right and a powerful tool to change the behaviour of a person and to equip oneself with the capacity of facing challenges in life. Policies have made education for children between six and fourteen compulsory and free. Hence it is the responsibility of the school authorities to see that their goals are directed towards achievement of this policy. The purpose of education for all is that every person—child, youth and adult shall be able to benefit from educational opportunities. Enhancing this learning environment is in the hands of society. Instead of sending unfinished products into society the school should emphasise more of the process of educational practices within the system. With the

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advent of technical support in the field it is much more crucial for the authorities to plan and perform to make the teaching-learning process a suggestive approach than dogmatic. Idea of BAL MITRA SHALA "A Child Friendly School" is the need of the hour. A child of today is well ·equipped with preliminary information from parents and media. Hence there is a challenge for the teachers, as source generator of messages.

W.H. Davis, poet once remarked *What is life if full of care? We have no time to stand and stare.* And that's a pity. Children must be allowed to be bored if their creative impulses are to be fully developed. Parents who believe they are doing children an injustice if they do not have a series of activities lined up are doing irreversible harm according to study. Boredom is the mother of creativity. Children of today, seldom get a chance to use their imagination. Too many parents, in a globalised India, cram too many activities into their children's schedule. This is the middle class and mediocre syndrome. Students are transformers of the world. They should be made as catalytic agents of change. So education of this era must encourage the development in each citizen of three things: an inquiring mind; an ability to learn from others; and a basic confidence in his own position as a free and equal member of society.

Stienberg identifies three components involved in our capacity to process information. They are (1) Meta components, (2) Performance components, and (3) Knowledge acquisition components. Jean Piaget says creativity is a mysterious attitude. What is required for the future is innovative learning schools and homes that can stimulate this creative thinking in children. Gawain, a psychologist claims that we can achieve love, fulfilment, enjoyment, satisfying relationships, rewarding work, self expression, health, beauty, prosperity, inner peace, and even harmony through creative visualisation. Society has deposited the whole child at the teacher's desk. The alert teacher must be constantly grappling with new ways of stimulating the students for better envision of range of possibilities in the arena (platform) of teaching. Every teacher should know the source of *buoyancy* hidden in their classroom.

Hence, it is right time to melt the walls of schools through which the students can see the application of the content they learn in social context. The inner talents of the child have to be brought out through spontaneous plays, divergence in the process of cognitive style and approach. Play with specific features will lead to behavioural influences. As play matures, there is a progressive transition from reactive and impulsive behaviours to behaviours that are more deliberate and thoughtful. Teacher has to adopt the role of a *Joylogist* to help the child to flower within, as Jiddu Krishnamurthy says:

"Every child can touch the sky, our responsibility is to show the way". Psychologists are of the opinion that the right period to mould a child is to start early before the synapses die. Hence, teachers of today need to be equipped with maximum skills in order to cope up with the explosion of knowledge and balance their other aspects of the child like personality development and emotional stability. They should acquire contextual competency and transactional competency to translate and transfer the inner meaning of the concepts more in a dialogue form than through the routine methods of learning.

In school curriculum, mathematics is considered as one of the most difficult subject. Difficulty with numbers is called Dyscalculia. It is a learning disorder in understanding mathematical concept or symbols. Research has shown that majority of the cases of developmental arithmetic disorder are psycho neurogenic in origin, with the deficit being based on the developmental lags rather than brain damage. Children with Dyscalculia find it difficult to understand the co-relation between relative positions of numbers like units, tens, hundreds and so on. Solving mathematics depends upon language ability, serial order processing and conceptual understanding. We will rarely find a baby knocking his/her head on the wall as he creeps part the door — he is learning angles or a child compromising an eclairs for a five star. If the child is such a genius, why does he end in NO MATH LAND. This is the problem that irrespective of scope and tools developed the system is not producing Einstein, Newton or Ramanujam from the classrooms. Instead of continuing with transient soon to be obsolete information and likely-to-be shortly outdated skills it has to be ensured that the students "Learn—How to learn" and be life-long learners. For this learning has to be through senses and concrete operation, which enhance the development of skills, problem-solving and doing abilities. It is here, that a better coordination between the suppliers (the school authorities) and the demanders (Parents, children) is required.

The time is ripe for undertaking a general reappraisal of teaching-learning process. Fruitful emotional reform has to be undertaken with the vision to eliminate the present barriers with an effort to close the gap between what the children learn and what they apply. The products from the schools in future should be equipped not only with knowledge but also with vital energy to conceptualise the meaning of what they learn and where to apply their productive energies. It is here the project "Tools of the Mind" began as a search for tools to develop the cognitive abilities of young children.

Vygotskian Principle

Lev Vygotsky was a Russian Psychologist. His perspective on children's cognition contributes greatly towards explaining: (1) How children think, and (2) Gain knowledge. A new innovation is required in the field of learning and development as the basis of inventing tools of the mind. These cultural tools of mind are very effective for improving the learning process. This project was successful as a collaborative work between two education researchers, Dr Elena Bodrova (Russian) and Dr Debovate Leong (American) who co-authored Leo Vygotsk's educational theories in 1996, a new approach to teachers to know the cognitive development of the child. Like Piaget, Vygotsky believed that children are active seekers of knowledge, but *cognition, he felt was a collaborative* effort of the child and the socio-cultural environment. According to Vygotsky some of the developmental outcomes and processes that were typical thought of as occurring "naturally" or "spontaneously" were in fact, substantially influenced by the Social, *constructivism*, i.e., Children's own mental development (way of thinking) and the role of social context (constructed thinking). Children acquire specific cultural tools handed over to them by more experienced members of the society (parents, teachers, and elderly peer). These cultural tools facilitate the acquisition of higher mental functions. Thus Vygotskian tool enables a teacher to make her learners a master of one's own behaviour and not a slave to the environment. This is explained in two planes– 1. External plane, where the mental processes are not yet ready for children and demands deliberate memorisation or focussed attention. 2. The internal plane, where the rools of the mind play a role in the child's construction of *his or her own mind*. Hence Vygotsky called upon teachers to involve arming children with tools that will lead to the development of higher mental functions than merely transfer specific knowledge. It is in this context the Zone of Proximal Development, play as a very important role in instructional practice.

A new method of regulating the cognitive processing of children sorting Vygotskian principles was experimented by Bruer and Annie Marie Palinscar in 1993 called Reciprocal Teaching. They stressed on self-verbalisation techniques by *incorporating ideas on meta-cognition*. It is a dialogue between the teacher and the student (or student-leader and members of the group) which finally paves way for students to generate questions, summarise, classifies and preditcs. Teachers and para-professionals practiced Reciprocal Teaching for a small group of impulsive group for 30 minutes at a time. Each student is given the opportunity to lead the dialogue and to experience the cognitive processing involved. The children are slowly lead to *self-regulation* and *meta cognition* with the help of shared learning and scaffolding. These essential learning experiments are typically studied in older children. But Vygotsky believed the origins are found much earlier in young children.

Scaffolding is not a Vygotskian term. This explains explicitly the idea of Jerome Bruner (Wood, Bruner and Ross, 1976) as the process of transition from teacher assistance to independence. And the teachers could do this by gradual release of responsibility. Degree of assistance is gradually pulled off without altering the learning task itself. Through this the capability of a child performing higher mental functions independently are developed slowly through *shared learning* to *individual* learning. It is better to hand over these tools in the early years. Whenever the child is ready for the shared activities with the teacher or with older children equip him with the tools of the mind as Scaffolding, Reciprocal teaching. A major outcome of this process is that the children acquire *ability* to take *control of their behaviour* opposed to be *as slave to the environment*. A position where each child adopts a teacher's plan as his/her own. Hence for educators who share Vygotsky's beliefs about the process of learning and development, the goal of instructional years involves more than merely transferring specific knowledge— but it involves arming children with tools that will lead to the development of higher mental functions and broaden Zone of Proximal Development.

Operational Definitions

1. Zone of Proximal Development (ZPD): ZPD holds the relationship between learning and development. ZPD is defined as the distance between the two levels of a child's performance. The lower level reflects the tasks the child can perform independently and the higher level reflects of the tasks the same child can do with assistance.

   ZPD is the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with capable peers.
2. Scaffolding: The process of transition from teacher assistance to independence without altering the learning task. Scaffolding resembles programmed instruction by making the learner's job easier by providing the maximum amount of assistance at the beginning stages of learning and as the mastery grows the assistance is withdrawn. But it differs from other instructional method that simplifies the learner's job by breaking a complex task into several simple ones.
3. Reciprocal Teaching: Reciprocal Teaching is a dialogue taking place between the teacher and the student (or student-leader and members of the group) that results in student learning, how to construct meaning when they are placed in MUST-READ situations (tests or assignments). This enhances private speech, shared learning and self-verbalisation among children.

Objectives

- To understand the Zone of Proximal Development through scaffolding of the mathematical concepts and observe the expansion of intellectual horizon.
- To make teachers aware of two crucial pedagogical techniques of Vygotskian perspective, namely Assisted Discovery and Cooperative Living.
- To regulate cognitive processing of children through Reciprocal Teaching for improving Self-Vebalisation in children and meta cognition in readiness.
- To suggest methods to develop tools of the mind and enable teachers to

acquire new skills to promote challenging and exploratory mind.

- To make teachers aware of cultural tools, which make one master of one's own behaviour.
- To make teachers aware of Edu-kit with themes in their subject to practice scaffolding, shared learning to observe the growth of ZPD.
- To make teachers use non-traditional techniques like spontaneous play, little teacher's concept, imaginative stories, and innovative ideas to teach mathematics.

Hypotheses

- Vygotskian's tools has no impact on learners mastery over mathematics in becoming master of his own
- Scaffolding technique has positive influence on the Zone of Proximal Development of the learners in learning mathematics.
- Progression in learning (assisted to individual) has no relation with maturational component.
- Higher mental functions in solving mathematical problems are improved by reciprocal teaching and shared learning.

Methodology

The first step was to prepare a survey questionnaire with some sample questions in mathematics and administer them to a few schools. This was done to identify the feelings of the teachers' regarding the new techniques of Vygotsky and take feedback as a pilot study. Later a sample of questions were prepared at two different levels. One for the pre-primary and the other for the primary level. This was done for analysing the self-verbalisation capacity. Role played by children when little teacher concept is introduced through reciprocal teaching (some concepts had to be taught only by the students), shared learning when they required the support of the teachers and as to when they are acquiring the higher mental skills.

The sample questions made and tested in the pilot study were shifted and administered to students in government, private and aided schools in the twin cities. Teachers were oriented as to how to conduct the exercise. They were asked not to make the students attempt the problems as a test but they were asked to be seated as to give scope to shared responses. Teachers were asked to keenly observe the questions and the way they approached each question. The process of answering was to be observed as to when the children needed scaffolding, when did they share their experiences and as to when they taught each other in answering the questions. The age of the child and a brief profile was used to analyse the results.

Limitations

The time factor is a major hindrance for exploring the talents of the children. Such work needs a full-fledged team of Teachers, Psychologists, and Language experts to go to the field and spend more time in analysing the behaviour patterns of the children while doing the problems minutely to get much more finer aspects of the Zone of Proximal Development. This team in turn should orient the teachers as to a schedule with which the teachers can easily judge the evidences of scaffolding, shared learning, and reciprocal teaching happening at the right moment. This kind of experience will help teachers to prepared their own kits based on Vygotskian principles.

Analysis and Interpretations

All students enjoyed answering the questions both at pre-primary and primary (LKG to Class VIII) levels. The teachers observed that the students preferred to discuss among themselves and find a solution (Traces of Reciprocal teaching and shared learning). It was also observed that primary children preferred to read the questions loudly and discuss the answers loudly (shared learning). They showed more enthusiasm than the elder children to answer the questions (evidences of inquiry learning more in young learners whose ZPD could be tapped at an earlier phase as told by Vygotsky). The children used their imaginative powers to find the answers. Only rarely they asked for support. The scaffolding also was evidently seen only in analysing the questions. The primary students have done the activities also as expected by them in the question number 25 and 35. The primary students enjoyed the poem and immediately found out that it is about shapes and numbers of sides. They formed a poem on their own and taught to their peer group on numbers (evidences of private speech and reciprocal teaching). Question number 15 was also demonstrated by children to their class by folding activity of the flaps without teacher support. The idea behind the folding of the flowers to arrive at subtraction was discovered by the children themselves. Many of the teachers expressed that the children shared their experiences from their day-to-day life, from parents, which helped them in answering the questions correctly and quickly. The most important discovery was that they knew where to apply this knowledge. Question number 2 under explore your talents as to place themselves as Doctor was done with a spirit of a researcher. The teachers expressed that the exercises of place value, rhymes and shapes and patterns through which the concepts of Math's are dealt, motivated the child to understand the concepts clearly. Students could interpret algebra through illustration of their choice in Question 2 student could see the aesthetic appearance of the table chosen in Question 6 and could analyse the position of people who can comfortably sit around the table.

Pupil could visualise 3-D object formed in Question 14 through observation. Many of them lagged the sense of beauty and symmetry in math's while answering Question 12 and Question17. This shows that the ZPD developed only in a few students in this area. Many students lagged the accounting skills needed in Question 3 which shows that ZPD develops only in social context.

Findings

The pupils expressed eagerness to learn through Activity-oriented method. They could understand the concepts better with reference to social context. They all agreed that they get tired when they read what they do not understand.

Teachers play a very important role in the development of ZPD. Teachers of India can also adopt Vygotskian principles to develop ZPD. This kind of study is the need of the hour. This study will promote the spirit of experimentation, research and innovative practices in school teachers. These cultural tools can be applied on students coming from varied cultural context. Many schools are opting for creative learners' section on an experimental basis. If such practices are taken up by the teachers of creative learners, perhaps, future will see many schools closing the traditional classrooms and opening new avenues for the learners of Mathematics and Science, an exploratory learning equipped with the "tools of the mind".

Knowing your Child

S.R. HUMBELIONE*

Child centric pedagogic paradigm has revolutionised the entire educational system bringing the child to forefront. In this period of stress and turmoil interaction and compatibility is the core requirement which necessitates knowing the person concerned. With this in view the article explores the problems associated with the students and through individual interview of students, teachers as well as parents attempts to develop means by which the child can be directed towards a wholesome and sound personality.

Ever since I started as a teacher and as a head of our institution I have experienced numerous problems among my staff and students. Most of them are common to all the students, hence they look simple in appearance, yet they are very complicated.

Very common ones among the students are personal problems like negative attitude towards self, low self-image, sadness, loneliness, aloofness, discouragement, anger and withdrawal from friends.

Classroom problems are irregularity in attendance, lack of punctuality, negligence in studying daily lessons and doing home assignment given by the teachers, lying, stealing, quarrelling, back-biting, lack of personal cleanliness and neatness, low performance in tests and examinations.

Teachers too experienced problems such as indiscipline in the class, lack of respect and obedience, unwillingness to comply with the requests of teachers, non-cooperation, arguing, fault-finding, calling them names, gossiping about teachers and other students of their classes, imitating teachers in their absence to have fun with their friends and disturbing classes during lessons.

Parents were often at a loss as they experienced lack of obedience, critical attitude, resentment, starvation from food to show their anger towards them, confusion at home due to the double

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standards set by the parents, partiality and sibling rivalry.

Still there were other problems with which I was disturbed—attitudes and dealings of teachers towards the students, punishments meted out to them — though not very severe, such as keeping them standing in the class or outside the class. In the former case they would not pay attention to what was taught in the class and in the latter case they would miss their lessons. Consequently, they get into a vicious circle, grow more arrogant, feel humiliated and continue their negative behaviour with no change for the better. In a few cases teachers get fed up of students. Students too felt the same and they did not feel any need of changing their behaviour and attitudes. They did not perform academically well enough to be promoted to the next higher class at the end of the academic year. Hence they were detained in the same class. As a result they dropped out of the school.

Sometimes teachers have recourse to the assistance of the parents. The parents are of various attitudes. The teachers send for them, but some of them do not turn up at all as they think that they have no responsibility towards their children whatsoever which by interference means the responsibility rests totally on teachers.

A few parents even find fault with teachers taking side of their children. Still others complain about their children to the teachers adding more negative feelings to the already existing ones, thus making the situation worse. Quite a few parents unfortunately hold the society, neighbourhood, friends etc. on the whole responsible for the negative behaviour of their children. In innumerable cases there are parents who blame one another and hold them responsible for the misbehaviour of their children.

A brilliant idea hit on me one fine day. Perhaps knowing every child in the class personally and closely by observing her, spending some time with her, relaxing and enjoying with her, teachers could solve such behavioural problems. This in turn could change the classroom atmosphere, school climate and home behaviour too.

An experiment on an infant project was born in my heart. There was great eagerness in me to try-out and draw valuable conclusions which could be of much use to my teachers in general and to me in particular. After much thinking I christened the Project — Knowing Your Child.

Knowing Your Child includes individual care and concern for every child. It emphasises activity on the part of the student and encourages life-long openness to growth.

The students who are in our school have not reached full maturity. The educational process recognises the developmental stages of intellectual, affective and spiritual growth and assists each student to mature gradually in all these areas. Thus, the curriculum is centred on the person rather than on the material to be covered. Each student is allowed to develop and to accomplish objectives at a pace suited to individual ability and the characteristics of her own personality.

Growth is facilitated by the personal relationship between student and teacher. Teachers are more than academic guides. They are involved in the lives of students, taking a personal interest in the intellectual, affective, moral and spiritual development of every student, helping each one to develop a sense of self-worth and to become responsible individuals in the society. While they respect the privacy of students, they are ready to listen to their cares and concerns, about the meaning of life, to share their joys and sorrows, to help them with personal growth and interpersonal relationships. In these and other ways, the teachers guide students in their development of a set of values leading to life decisions that go beyond "self" that includes a concern for the needs of others.

The following objectives were set for experiment:

- To listen to the students, understand and guide them.
- To pay attention to what they say and also to what they do not say.
- To know their family background and problems they face therein.
- To help and support them in their emotional stress and guide them to grow as balanced, happy human beings.
- To facilitate a positive attitude towards self and others so as to enable them to live in serenity.
- To encourage the maximum use of potentials of children and to channelise their energy in the right direction for constructive purposes.
- To give them love for learning and lead them towards academic excellence.
- To establish a good rapport among students, teachers and parents.
- To guide our students to think positively and cultivate helpful attitudes.
- To strengthen the habit of Reflection, Introspection, Self-Evaluation and Journaling.
- To encourage student centered evaluation of their work.
- To provide fresh insights and inspirations in building up teachers' relationship with students.
- To share with parents and teachers my experience of the experiment so as to give them confidence in performing their difficult task of bringing up their children.

The Approach

I believe this is an appropriate approach because education is for the child and not vice versa. In the process of education the child is the center. The teacher, the parent, the syllabus to be taught and the society revolves around him.

A young child has a soft and yielding heart. What we offer her today has a lot to do with her contribution to the future. If she is moulded at present in the right values, attitudes and ideals we can expect a better and more organised world of tomorrow. We need children who think rightly, judge correctly and have the heroism to live up to their personal convictions.

A child often learns a lot from what she sees rather than what she hears. It is our liability to give her enough scope to see, learn and live according to the possibilities we avail to her.

In schools 'what to learn' is given to them but 'how to learn' has to be painstakingly and individually discovered. It is this that makes us teachers answerable to make our children better human beings first and then better students by our personal relationships with them. Only then they will be able to discern their way through the bewildering complexities of the 21st century.

Real learning is that which goes straight to the heart of what means to be a human being.

The age between thirteen and nineteen is the age of Inspiration. During the teenage period the child is inspired by great ideas of one kind or another. She must have heroes. If she is not given heroes, she will find them. If she is not inspired by the right kind of heroes, she will be inspired by the wrong ones. During this period a great deal of stability and character is gained if the teenager has a certain goal in mind. She needs both short-range and long-range goals. By now, however, the adolescent needs to have inner control to be effective. Teachers cannot possibly be present at all times to control them. Self-control with deep convictions is far better than the external control. Knowing her is facilitating her character formation. Knowing her is making her a confident, happy, serene, optimistic individual.

Observation and Collection of Data

At the beginning of the academic year every teacher was given a notebook with a big caption written on it: KNOWING YOUR CHILD.

The teacher was asked to write her class children's names according to the roll call numbers, assigning at least two pages to each of them. Within the two months of the new academic year the teacher had to make time to meet each child and get to know her family background, home situation, problems connected with her studies in home as well as in the class, relationship with parents and siblings, relationship with teachers and peer group, etc.

The teacher had to listen attentively, facilitate the process of problem solving, guide her, win her confidence, if need be visit her house or send for her parents, involve other staff members in case of necessity, motivate all of them to join hands with her to solve the problems the child faces at home as well as in the school.

In order to remember whatever has been done, the teacher had to make note in the book and do the follow up.

Every teacher did as she was told. The results were amazing. Here are a few examples:

1. *Jyothi, Standard VIII* was slightly overweight and her muscle tone was below what it should be. In the class she used to be restless and unable to sit still during the lessons. Concentrating on her studies was next to impossible for her. Consequently, her academic performance was very low. She had a passion for watching television and going to the movies but she was not involved in any kind of sports. Lack of physical exercise made her look quite dull and

passive. I felt, being out of shape is associated with a greater chance of scholastic under-achievement.

Mrs. Sharada, her class teacher, after getting to know her, recommended Jyothi to get more physical exercise. She did. The result was surprising. She slimmed down, looked prettier and did better in her studies. She is now a member of the basketball team.

2. *Shanthi, Standard IX* was rebellious, emotionally unstable, uptight and aggressive.

Mrs. Rani, her class teacher, spent sometime in knowing and guiding her. On the advice of her teacher she went through a long-term physical fitness programme. Such a programme besides making her feel healthier, made her calm down, and helped her to be serene, peaceful and pretty.

3. *Usha, Standard IX* was lazy and negligent in her work at school.

Mrs. Radha, her class teacher, after speaking to her motivated her to rise early and take a brisk walk daily. She felt active, her energy level rose higher and her creativity level was at a peak. The increased energy level combined with the added mental alertness helped her academically. She, whose company was detested by others, now has many friends. She also moves in the circle of clever children who perform well in their class.

4. *Lakshmi, Standard X* did not like to be in the company of her parents specially during the meal times because she always found them discussing family problems, watching television, reading magazines, newspapers or books. Hence their attention was neither on the family nor on the food. Consequently, she being distracted ate more than she should.

Mrs. Geetha, her class teacher, after knowing Lakshmi and her home situation well, met her parents and gave them practical suggestions to make their meal times casual, relaxing and happy for the whole family.

5. *Laly, Standard XI* was the only daughter of Somashekar, a businessman who worked day and night to earn more money. Laly was stealing money at home and also money, books and food from other children in the class. Her father was strict with her, she never experienced his love and kindness. There was constant disagreement between her parents over her. Her mother pampered, while the father controlled her.

After understanding Laly pretty well, Mrs. Selvi, her class teacher, sent for the parents and laid before them the hard facts about Laly. They both realised that it is they who have brought Laly to that sad state of affairs due to their own behaviour and by not spending enough time with her. They were moved. Both of them re-evaluated their entire life with the help of a Counsellor and decided that they would begin a new life that would make Laly a new person too. From that day on Mr. Somashekar stopped working at night and worked only during the day and earned much less money, yet he was satisfied. He took a little more rest and was relaxed. He had a little more time to be with his wife and daughter everyday. The trio looked relaxed and happier. While Lily was leaving for school in the morning, her parents saw her off at the gate and when she returned in the evening they lovingly welcomed her. Parents showed great interest in her school life. This changed her life, she gave up all her bad habits, improved her academic achievements, made new friends and became a new person. The gloomy house became a bright place for them to live in.

My Personal Experience

I too did a little experiment as the head of the Institution. Knowingly or unknowingly I used to be pre-occupied with my responsibilities and the students took me for a serious person. They said that I teach well, they like my teaching but I am too serious a person to look at. They made several other comments too about me. After listening to all that they had said about me, I decided to change my seriousness into a gracious cheerfulness and pleasantness. I started smiling at the students, started calling them by names, and picked up conversation with them outside the classes. What more? I started using a bit of sense of humour in the classroom. What a change! Sense of humour and optimism helped me to overcome classroom problems, obstacles for teaching and learning and difficulties in dealing with my students. Humour became great encourager. Evidence mounted up that humour is one of the truly great teaching and motivational tools in life. On an experimental basis one day I used sense of humour and taught a lesson and on another day I taught a lesson seriously without any humour. At the week-ends, test, were conducted on both the lessons. Children performed well on the lesson taught using humour.

Personally I felt that because of my change of attitude towards the students all the ice melted away. There was better relationship between my students and me, between my staff members and me, between the parents of the children and me. Students who did not easily bring their parents to meet me, now brought them willingly. The whole situation of the school turned better and brighter.

Processing of Data and Results

Results were found out through brain storming during a meeting, personal interview, academic tests and examination, talent search programme, leadership training camp, participation in sports, handwriting test, reading aloud to check pronunciation, checking study habits, introspection, journaling, reflection and self-evaluation.

The following are the opinions of parents, teachers and students gathered in a personal interview regarding the outcome of the innovation: Knowing your child.

Parents, Opinion

- Their children are showing signs of emotional maturity.
- Their relationship with the parents is very friendly.
- They have a greater sense of belonging to the family and they understand their parents' difficulties.
- Their academic performance is better.
- They say their teachers give them guidance which is very useful and helps them in their day-to-day life.

- They manage their time well for personal cleanliness, study, to help their mothers at home and also for relaxation and recreation.
- There is better atmosphere at home and a good understanding between children and parents.

Teachers' Views

- Meeting children one by one is indeed a joyous experience.
- Students are open and ready to confide in their teachers.
- Students are eager to meet their teachers.
- They study their daily lessons.
- They do their home assignments and submit them on time.
- Students come to school neat and clean.
- They participate in all the curricular and co-curricular activities willingly with greater enthusiasm.
- They are regular in Journaling and draw great strength from it.
- They are improving themselves with Reflection and Self-evaluation.
- Introspection helps them to correct themselves and to own up their own mistakes.
- There is a greater sense of sharing and caring among the students.
- All of them strive for academic excellence.
- Better co-operation and respect for one another is seen in the class.

Students' Expressions

- They are eager and happy to come to school and almost all of them put in regular attendance.
- Home work, tests, examination etc. are no more a burden. They derive great satisfaction from them.
- They experience the acceptance and love from parents and teachers.
- They are no more scared to approach their parents and teachers.
- Reflection, Instrospection, Self-evaluation and Journaling help them to improve themselves in every way.
- Their teachers know them personally and closely.
- Their all-round development is given attention.
- There is greater enthusiasm, zeal, serenity and peace among them.
- They keep their belongings clean, neat and tidy.

My Personal Impressions

- Classroom and school climate became pleasant.
- A better understanding developed between parents, teachers and children.
- Students broke their own records to create better ones and the academic excellence scored high.
- All the complaints from the parents about their children and from the teachers about the students disappeared.
- The whole school wore a brighter look.
- School became a centre of many more activities.

Findings

1. Raising happy, healthy and well adjusted children is the greatest challenge for today's parents and teachers.

   Most of us need to find solutions and ways to improve our relationship with our children. Whether our children are tiny tots or growing teenagers spending time with them is essential. Only then we will know our children's problems, aptitudes, attitudes, tastes, likes, dislikes, joys and sorrows. Knowing is guiding, Knowing is coming closer, Knowing is accepting.

2. Teachers need to be humane and treat students as human beings. It is my firm belief that much can be accomplished by the teachers who are humane in dealing with students. What matters in life is compassionate consideration for their feelings, problems, etc.

3. Involvement of parents in the lives of children is of utmost importance. Parents need to converse with their children, listen to them, tell them stories, share their experiences, play games, share hobbies, provide books, organise a special place for study, observe routine for meals, bed time, rising time, home assignments, etc. and monitor the duration of time spent watching television.

4. The habit of Reflection, Self-evaluation, Journaling and Introspection has to be encouraged.

   Students under the guidance of teachers learn to think for themselves, evaluate their behaviour and work. Journaling helps them to keep track of the events and their reactions to them. Noting down each day after a brief Introspection, students understand the areas wherein they should make efforts to grow. This helps them to grow emotionally, psychologically, socially and spiritually.

5. Positive thinking will go a long way in moulding children's character.

   A winning attitude, a positive self-image, and positive thinking will make children feel confident at all times. Even in the face of difficulties they will not be discouraged. They will learn to accept success and failures with courage. Thus they develop a balanced attitude towards life.

Inferences

1. Teachers must know not only subjects they teach but also the children whom they teach.
2. Efficient school teachers may cost more, but poor school teachers cost the most.
3. Morals and Ethics can be inculcated more effectively if teachers know the students.
4. When we spend time with children we don't pay any price, we reap its benefits.
5. It is essential to give our children a quantity of quality time.
6. Time spent for children is a life-time investment.

Supporting Data

Dr. George S. Benson, once said "Great ideals and fine principles do not live from generation to generation just because they are good,. nor because they have been carefully registered. Ideals and principles carry on generation to generation only when they are built into the hearts of children as they grow up."

Touching the tender hearts of children and teaching them how to handle sibling rivalry, overcome problems with their behaviour, teaching them to be sensitive towards the less fortunate, inculcating in them the habit of communicating with others and listening, importance of self-discipline, praising and encouraging others, motivating and inspiring them to achieve better results in their lives, bringing order out of chaos, training them to make decisions, participating in family discussions, managing time and stress, handling over-eaters or reluctant eaters, teaching dependence and indepenence, etc. will go a long way in making them balanced individuals. Touching their feelings will give us better results than influencing their reasoning capacity,

Give equal importance to their mind and body: "Physically fit people are more intellectually inclined, emotionally stable, composed, self-confident, pleasant and relaxed. The very act of keeping in shape reinforces these personality attributes. Exercise not only makes you fitter, it can even sharpen a person's ability to process information, consequently enhancing one's learning capabilities" (Pioneering Studies by A.H. Ismail, a profession of Physical Education at Purdue University).

In my life as a teacher these won't mean anything:

- The number of children I have taught.
- Hundred per cent results I have secured.
- Wonderful stage performances I have directed.
- The number of prizes my students have bagged.

Educational Implications of the Experiment

1. For many children education has become a punishment rather than what it is meant to be — a drawing out, an unfolding of self, an aid to the child to discover her best potentialities
   - Knowing children is to make education a joyous experience and giving education its rightful place and facilitating it for what it is.
2. There are surveys that indicate 30% of school children suffer some kind of emotional disturbances
   - Knowing children is to assist them to overcome stress and to maintain emotional balance.
3. Educators need to keep learning to deal with the younger generation
   - The teachers will have to take at heart on-going professional training to meet the demands of growing children.

4. We need to focus on the whole child
    - Physical, emotional, intellectual and social aspects to lead her to wholeness should be given importance. Wholeness is fullness.
5. Multiple intelligence has to be activated and developed
    - Students should be given scope to learn subjects utilising all seven types of intelligencies.
6. Right brain and left brain hemisphere should be developed side by side
    - Students should be directed to learn subjects that appeal to the heart and the head.
7. Curricular, co-curricular activities should be encouraged
    - These will speed up the process of socialisation of students by sharing with one another their talents and abilities.
8. Portions for study should be lessened
    - Sufficient time should be given for socialisation and building up friendly relationship among the students.
9. Have a drastic change in the syllabus, examinations, evaluation etc
    - Give the possibility to the children of being exposed at the earliest to the vocational and skill-oriented education according to their attitudes and aptitudes.
10. Do away with the exam-oriented education
    - Guide the students through co-operative learning, projects, reference work etc. to gain knowledge so that they may be really learned and be wise.
11. Lessen the number of students in the classes
    - This will help the teacher to give individual attention to every child and to build up personal relationship with them.
12. Counselling cells need to be set up
    - To resolve crisis and to assist the parents and the children to solve their problems counselling facility should be made available.
13. Selection of teachers should be given priority
    - Teachers should have aptitude not only to teach subjects but also to handle children.

Utility for

a) Teachers

- The teachers get to know each child personally and facilitate learning with greater ease. Knowing is teaching.
- Teacher-learner relationship improves. Education is relationship. It is teacher's primary role to facilitate the growing relationship of the learner with truth, particularly the matter of the subjects to be studied.
- The teacher creates conditions, lays foundations and provides opportunities for the continual interplay of the students' experience, refection, action and introspection.

- Educators keep learning through reading, attending seminars, participating in workshops, etc.
- Teacher becomes more human as she handles human beings.

b) Students

- Serenity, peace and confidence will help towards the collaborative and co-operative learning. This will make a deeper and lasting impact on them.
- The children learn and build wholesome relationships with teachers, parents and peer groups.
- Personal relationship helps them to internalise what they see and experience.
- Journaling helps them to monitor their own all-round growth.
- Learning becomes a joyous experience.

c) Parents

- The best inheritance a parent can give to his child is a few minutes of his time each day.
- The best thing to spend on children is time.
- Dealing with children becomes easier.
- Respect begets respect and love begets love.
- It strengthens the familial bond.

d) Society

- This experiment helps to explore new possibilites as an expanding network of people concerned about the development of children through all-round development.
- Today's children are tomorrow's society. Therefore, urgency of taking care of them is great.
- These individuals grow to be socially concerned as they are trained to be sensitive to the needs of others.
- Devotion to duty, integrity and diligence make them responsible citizens.
- They will be able leaders of the society tomorrow.

Applicability of Results in the Field

1. "The very act of keeping in shape reinforces the personality attributes," says the Purdue Researcher, "exercise not only makes children fitter, it can even sharpen a person's ability to process information, consequently enhancing one's learning capabilities." We will have a better generation in the days to come.
2. Education will be liberated from competition and commercialisation by concentrating on the Integral development of children.
3. Education can be made a pleasant and joyful experience for students by providing opportunities for the blossoming of creativity.
4. Students, teachers and parents can become aware of their responsibility to contribute to the well-being of society, particularly to the disadvantaged and marginalised sections.

5. Children will develop in them concern and sensitivity to the environment and all forms of life.
6. Students, teachers and parents could be transformed into messengers of peace with themselves, in Society and in the world at large.

Cost Effectiveness

This practice costs nothing in terms of money. It is a matter of availability and generosity as it consists in making time to meet every child, giving quality time to listen to the child, understanding carefully with concern and compassion, persevering consistently in doing a follow up, showing love, affection and interest in dealing with the teenagers.

No need of budgeting. One needs to invest time. Time is the precious commodity to be utilised for the well-being of children.

Conclusion

A large part of the well-being and fulfilment in the life of our students comes from their relationship with other people, work and environment. Our education system completely ignores the need to provide any means by which they can relate well to others, co-operate and collaborate with them and be enriched by their work and environment.

We need to evaluate children not only with marks they secure but by their feelings, attitudes, values, the ability to relate to others, concern they show to persons and the way they go out in service to others. Respect for environment is also very crucial.

It is very essential to treat children as human beings with flesh and blood and not as machines. The challenge for us is to be a part of the emerging world dominated by machines and technology, but not to lose touch with the need for well-being and wholeness as human beings.

In this quest personal encounter among children, parents and teachers is of utmost importance. I am a teacher, I am most fortunate, for I hold in my hands *Precious Jewels of Great Price.* Striving to build up good relationship between parents, children and teachers is my *Mission and Commitment.*

Effect of Mediated Learning Experience on Communicative Competence of Primary Teacher Trainees

A. JAHITHA BEGUM*

Communicative competence requires an individual to assert the language to be used effectively. The extent to which it occurs depends upon the medium used to indicate it. In the present article emphasis is laid on developing Communicative Competence in English among pre-service teacher trainees through Mediated Learning Experiences. The pre-test and post-test design indicated that it can be used as an innovative and effective means.

English is the language of opportunities as it takes one outside one's own community, to places where more opportunities are available for professional and economic reasons. Developing communicative skills among learners would enable them to use the language in context to lead an effective life.

Communicative Approach to Language Teaching

The communicative approach claims that learner's motivation will be increased if the learner feels that s/he uses communicative skills. Learners assert that a language is learnt effectively when the focus is not on language and that learners learn how to communicate by interacting with the teachers and fellow students.

The primary motive for learning a language is that it provides a means of communication. The extent of this communicative need depends upon the nature of the social community in which the person lives.

Rationale in the Selection of the Problem

The researcher joined DIET in 2000 after resigning her job as Trained Graduate

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Teacher in different Kendriya Vidyalayas. In Kendirya Vidyalayas the teachers are supposed to use Hindi and English as communicative language. Majority of the students apart from their mother tongue are well versed in English and Hindi. In DIET, as English teacher the researcher interacted with the teacher trainees in English, assuming that all the trainees have studied English upto their higher secondary level. Hence the researcher used English inside and outside the classroom. Despite the usage of English by the researcher deliberately in all the occasions, except a very few, most of the trainees find it difficult to speak in English. As far as teacher trainees are concerned, they didn't have any opportunity to speak in English except in the English classes. Even in the English classes the usage of mother tongue could not be avoided by the trainees. Majority of the trainees are from rural areas and they have studied upto higher secondary level where the medium of instruction is their regional language. On close observation and after friendly interaction with the trainees, they admitted that they didn't have any proper learning experiences in learning English. They possess some shyness, mistrust and some sort of inferiority complex in using English in communicating with their friends and with the teachers.

The researcher came across an article by Reuven Feuerstein and Louis H. Falik on Cognitive Modifiability, a needed perspective in learning for the 21st century on the Internet. Reuven Feruerstein framed the theory of structural cognitive modifiability after working with orphanage children of World War II. He worked with students who were abandoned. As a result of his success, now people keep sending him students from all over the world. He worked with the children who were considered as learning disabled. Feuerstien stressed the importance of the mediator and he is of the opinion that human brain is highly plastic and modifiable. The environment plays a vital role and it must be heterogeneous, in presenting a variety of models and differences in experience with the help of proper mediator and right environment. A belief in change or modifiability will bring fruitful results.

The researcher having inspired by Feurestein's theory of Mediated Learning Experience, decided to act as a mediator in enhancing the communicative competence of the teacher trainees.

Structural Cognitive Modifiability

Theory of Structural Cognitive Modifiability and the theory of Mediated Learning Experience (MLE) frames cognitive psychology in a very different way. This theory brings intelligence and its modifiability in a constructive view.

The theory of Structural Cognitive Modifiability (SCM) places environment in a higher position. Environment must increase the experience of belonging to make the individual amenable to adaptation. The environment must constantly require new adaptations. The nature and type of interactions in the environment must be conducive to making and sustaining change. The environment must be heterogeneous, presenting a variety of models and differences in experience the environment must pay attention to differences, to accept and prize diversity. The theory of SCM coined by Reuven Feuerstein has been the basis of many educational applications to promote higher level of thinking.

Role of the Mediator

Mediated Learning Experience describes a special quality of interaction between a learner and person. This theory explains the role of a mediator who plays an important role of triggering the innate potential of the learner. 'Learning how to learn' is the aim of mediated learning and seems appropriate to everyone.

Mediated learning occurs whenever an individual deliberately places him or herself between external or internal stimuli and the learner and transmits the stimuli in a particular way to that learner. Neurological researches stress the importance of emotions which are very much a factor in learning. The theory of Mediated Learning Experience does not just focus on the cognititve side, but looks at emotions too.

The theory is used as an intervention with special needs populations. It is also a way of looking at all kinds of learning situations and seeing how human beings progress and develop not just as individuals but as whole societies in the world. Feurestien, who evolved this theory believed that both nature and nurture determine cognitive functioning. Feurestein provides great insight into specific aspects of mediated learning which can be used to improve cognitive functioning.

In Mediated Learning Experience some mediation is between the stimuli and brain processing and resulting experience. The purpose of the mediator is to help to develop new cognitive structures. Mediated Learning occurs whenever an individual deliberately places him or herself between external and internal stimuli and the learner, and transmits stimuli in a particular way to that learner.

Objectives

1. To construct Mediated Learning Experiences to enhance the communicative competence.
2. To stimulate the learners towards communication in English.
3. To motivate the learners to have faith and confidence in the communicative competence.
4. To remove the fear and hesitation in communication with their friends in English.
5. To develop a sense of confidence and interest among the learners in attaining the goal of communicative competence.

Sample

The second year teacher trainees of DIET, Kilapalur, Ariyalur District, Tamil Nadu forms the sample for the study. They were 40 in number.

Methodology

The effect of the Mediated Learning Experiences was tested in the following procedure.

One group for pre-test and post-test was selected.

Pre-test

Before introducing the Mediated Learning, experiences the teacher trainees were requested. They shared with their friends and the teacher on the ten topics and based on their performance orally, marks were allotted for ten items each containing five marks and totalling 50 marks.

Providing Mediated Learning Experiences

Here the mediator provided the above ten mediated learning experiences. In each mediated learning experience the mediator presented effectively, thus inviting the learners also to speak about themselves, about their family, friends, interests, etc. She helped them individually with needed vocabulary, sentence patterns, etc. The mediator acted as a guide on the side. So the learners gained confidence and interest. All the trainees were trained in each item and after each item they were asked some interacting questions by their friends. Though some got struggled at the beginning, after presenting two or three items they gave up their fear. The demonstration of receipe was done by the trainees in an interesting way. Like that story time and joke time were also enjoyed by the learners because each one got the opportunity to present their own joke or story. The mediator played a vital role in making the students to communicate with their friends. Thus it formed a good start for the teacher trainees who never had the habit of speaking with their friends in English. Four or five students did very well because they have studied in English medium schools. They acted as group leaders and they helped their friends thus paving way for group and co-operative learning.

Post-test

After the Mediated Learning Experiences again the teacher trainees were asked to speak about the ten topics. The scores were awarded based on their performances. They formed the post-test scores.

The following statistics were calculated from the pre- and post-test scores. They are Mean, Standard Deviation, Co-efficient correlation "r". With the help of 't' value the two mean values were compared. As the calculated 't' value is 8.4 which is higher than the theoretical value at 0.5 per cent level, there is a significant difference between the pre- and post-test scores due to the impact of the Mediated Learning Experiences.

Table showing the Mean and Standard Deviation of the Pre-and Post-test

Test	*Mean*	*SD*	*'t' value*
Pre-test	17.84	2.59	0.8
Post-test	35.37	1.84	8.4

Findings

1. There is a significant difference in the mean scores of the pre- and post-tests of the study as the calculated 't' value is greater than that of the theoretical value.

2. The Mediated Learning Experiences provided by the mediator is very effective in forming a 'good start' among the teacher trainees to enhancing the communicative competence.
3. The Mediated Learning Experiences created a real interest and enthusiasm among the learners as they involved in the communicative process which they are going to be effected.

Educational Implications

1. Communicative competence is very essential for the primary teacher. The teaching of English will be effective if the teacher interacts with the students in the same language in second language acquisition.
2. The innovative approach is effective in enhancing the communicative competence which in turn promotes the communicative skills of the teacher trainees.
3. The Mediated Learning Experiences create interest and confidence among the teacher trainees as they lack these at the beginning.
4. Affective components like self-confidence, self-motivation play vital role in any form of learning. The Mediated Learning Experiences play a vital role in creating these affective components.
5. Most of the trainees remain passive in the class due to fear and shyness though they possess a good knowledge of writing skills.
6. The psycholinguistic principles of language acquisition stress the importance of speech before reading and writing. In order to improve the speaking skills Mediated Learning Experiences are very effective.

Utility of the Approach

The teacher-trainees are the future teachers for the future citizens. Unless they possess communicative competence they could not perform their duty as English teacher in an effective manner. The primary teacher-trainees after completing their Diploma course in teacher education are supposed to handle Classes from I to VIII and all the subjects. As far as English is concerned they should be more talented in teaching English.

The syllabus in DTE course contains grammar, phonetics and methodology of teaching English. In spoken English knowledge of phonetic transcription, stress, intonation are taught. The teacher-trainees are made to develop their communicative competence also which will hlep them to converse with their friends with the help of mediated learning experiences. As they are made to understand the importance of communicative skills they can shift their teaching from the communicative viewpoint.

Cost Effectiveness of the Method

This is almost 'no cost' innovative practice. This innovative approach needs the help of the teachers as mediators. The teachers should consider the difficulties of the learner, they should find out the 'barriers' in their communication, they should help the learners to remove the 'barriers' in by speaking to them, they should help the learner 'individually' to know how to use appropriate vocabulary, the mediator should help them in 'privacy' before they present their speech in front of the audience (who happened to be their peers). Thus except in some demonstration the teacher need not worry about the expenses, even the articles, ingredients demonstration were met the teacher trainees-themselves. Except the patience, consideration, 'real' love and affection towards students, no cost will involve in practicing this innovative approach.

Mediated Learning Experience

The following ten Mediated Learning Experiences for communication are constructed based upon the communicative approach to language teaching. They are:

1. Self introduction
2. My family
3. My hobby
4. My friends
5. My native place
6. My favourite cricketer
7. My favourite cine actor
8. Demonstration of a receipe
9. Joke time
10. Story time

One each of the topics of exercises for Mediated Learning Experiences are given below.

Self-introduction

I am Jahitha. My native place is Puduckkottai district in Tamil Nadu. I am 18 years old. I have no brothers and sisters. My father's name is Abdul Huck and my mother's name is K. Sabira Begum. I like my mother very much. She only educated me up to this level in spite of all the difficulties. I have only one son, Master Habeeb Rahman.

My Friends

My close friends are Mrs. Vishalakshi, Mrs. Suganthy and Mrs. Seethalakshmi. They are my family friends. I used to share my happiness and sorrow with my close friends. Mrs. Vishalakshi is in Delhi. I used to write letters and send e.mail to her. Mrs. Seethalakshmi is in Karaikudi and I used to contact her by telephone. Mrs. Suganthy is nearby to my native place and we often used to visit each other.

My Hobby

My hobby is listening to music. I am fond of old and new Hindi and Tamil songs. I like to spend my leisure time by listening to music. Especially in the morning hours I listen to Ceylon radio station. I listen to the English news both in the radio and in the Doordarshan.

My Family

My family is a small one. My father, my mother, my grandmother and my son are in my family. As my grandmother, father and my uncle are old and sick, I have to take care of them. I think it is the duty of the young to take care of the old. I love my family very much. I pray the Almighty to give them long life and happiness.

My Native Place

My native place is Pudukkottai district in Tamil Nadu. Once it was a princely state. It is neither a big town nor a village. Puddukkottai is a well planned city. The main roads and streets cut each other in the right angle. There are many famous and ancient temples in the city. The court, college and collector office reveal the architecture of the British Reign.

My Favourite Cine Star

I.used to go to theatre once in a month. In Television also I used to watch my favourite films. Though there are many in the film field, I like Mr. Prabhu Deva very much.

He is hero-cum dancer. He is known for his quick movements and timing in his dance performances. His action is simple and romantic.

My Favourite Cricketer

Tendulkar is my favourite cricketer. He is well known for his devotion and spirit in his game. I like him very much because he used to play in a calm and steady manner. He won't become emotional. Children are very fond of Tendulkar.

Demonstration of a Receipe

"Dear friends, now I am going to demonstrate the preparation of vegetable salad.

See the ingredients, what are these? Two onions, one green chilly, one tomato, one cucumber, coriander leaves and table spoon of salt.

Now I'll tell you how to prepare the salad.

Take the onions, cucumber, chilly, tomato and cut into fine slices.

Mix them and add a pinch of salt and lemon juice.

Leave the mixture for ten minutes.

Now the salad is ready to serve and serve with breakfast, lunch or dinner.

As the salad contains fresh and raw vegetables, it is good for health.

Will you demonstrate my receipe demonstration like this tomorrow?"

Joke Time

Once a flight got into trouble on board. Only one parachute was there for escape. But inside the aircraft there were four including the captain, a scientist, a politician and a boy. The captain asked the politician and the scientist to decide among themselves whom to take the boy. In the meantime the politician all of a sudden took the parachute and jumped. On seeing this the boy laughed and said "I replaced my school bag with the parachute".

Story Time

Once upon a time there lived a farmer. He was the devotee of Lord Vishnu. In the devaloka Narada asked Lord Vishnu who is his sincere devotee? Lord Vishnu replied that the farmer was his sincere devotee. On hearing this Narada got angry and he asked Vishnu what was the reason for that? His decision was nobody in this world would a sincere devotee as Narada because he is calling Lord Vishnu's name each and every fraction of the second. Lord Vishnu laughed and told that Narada can very well know the reason for performing a rotation to the earth. He also asked Narada to go with a small cup filled with oil. Narada did the same. On his return he asked Narada at the time of his revolving the earth how many times he called upon his name? Narada replied that he didn't call him even once, because he was very careful in not shedding a drop of oil as Lard Vishnu asked. Then Lord Vishnu laughed and said that the farmer in spite of his duty he used to call three times his name per day. Hence he remained as his sincere devotee.

PROFILE

Sri Aurobindo (1872–1950)

The word 'Arvinda' in Sanskrit means lotus and spiritually it symbolises the divine consciousness, a singularly appropriate and prophetic name for the child. This 'Aravinda' grew up to become Sri Aurobindo who sailed through the arduous journey of life as an inquisitive diligent student, a committed revolutionary, an ardent patriot, a profound philosopher, a liberal educationist and above all a yogi.

Aurobindo was born on August 15, 1872 in Calcutta. He was admitted to an Irish nuns' school in Darjeeling for the beginning of his education and in 1879 he was taken to England by his parents. He returned to India in his twenties, after spending fourteen years in England. The moment he reached India, as he told later, had a profound spiritual experience of the calm and silent self. It was as if mother India was welcoming the return of her son by giving him, her spiritual treasures for a greater rebirth in him of her ancient glory.

During his stay in England, Sri Aurobindo had acquired a mastery of European literature and culture but after his arrival in India, his real interest lay in Sanskrit, in literature, and in the national movement. His immense powers of concentration and his ability to read with great rapidity, whilst retaining the essentials of what he read enabled him to cover a wide field of studies. As he plunged into Sanskrit studies. Sri Aurobindo was inevitably drawn to the poetic genius of Kalidassa and he wrote extensively on Kalidasa.

"He always appeared to me nothing but a self-denying *brahmachari*, austere in self-discipline and acutely sensitive to the suffering of others. Acquisition of knowledge seemed to be the sole mission of his life. And for the fulfillment of that mission, he practiced rigorous self-culture even amidst the *din* and bustle of an active worldly life. I never saw him lose his temper. No passion was even seen getting the better of him. It is not possible to have such control without the highest self-discipline".

Dinendra Kumar Ray says in his *A Sketch of Sri Aurobindo*.

Sri Aurobindo's study of history led him to realise that without a revolution no country could win its freedom. He added that 'the proletariat is... the real key of the situation. Torpid he is and immobile; he is nothing of an actual force, but he is a very great potential force and whoever succeeds in undersanding and eliciting his strength, becomes by the very face-master of the future. With the unerring insight, Sri Aurobindo said that our actual enemy is not any force exterior to ourselves, but our own crying weaknesses, our cowardice, our selfishness, our hypocrisy, our purblind sentimentalism'.

He felt that in India 'tamas' has taken possession of the people. We have abandoned Shakti and are therefore abandoned by Shakti. The Mother is not in our hearts, in our brains, in our arms. So Sri Aurobindo gave the call: India must shake off her lethargy and rise to her ful stature.

What is India! It is not a piece of earth, nor a figure of speech, nor a fiction of mind. It is a mighty Shakti, composed of the shaktis of all the millions of units that make up the nation.

There were three sides to Sri Aurobindo's political ideas and activities. First, there was the action with which he started a secret revolution's propaganda and organisation of which the central object was the preparation of an armed insurrection. Secondly, there was a public propaganda intended to conert the whole nation to the ideal of idependence which was regarded, when he entered into politics by the vast majority of Indians as unpractical and impossible. Thirdly there was the organisation of the people to carry on a public and united opposition and undermining of the foreign rule through an increasing non-cooperation and passive resistance.

During the year 1906-1907, Calcutta was in a state of great turmoil. Everywhere there were cries of "Freedom" and "Boycott". Swadeshi, national education, rural upliftment were the slogans dwelt upon everywhere. And along with that secret underground preparations for revolution, revolt and armed attacks were going on, there was an upheaval, a surge of shock and resentment. And the cry of 'Bande Mataram' acted as a mantra invoking the Mother for strength and peerlessness.

In March 1906, Sri Aurobindo attended' Barisal conference, on 14th April the delegates went in a procession shouting 'Bande Mataram'. Many volunteers were beaten mercilessly by the police. As a result of Boycott Movement many patriotic students and teachers refused to attend Government schools and colleges. So a National Council of Education was formed and Sri Aurobindo became the Principal of National College. He described National Education Council, as an integral and most important part of the 'New National Movement'. He felt that the system which the British had introduced 'tended to dull and impoverish sand tie up the naturally quick and brilliant and supple Indian intelligence'.

It was his experience in the Alipore Jail during 1908-1909, which brought profound changes in him. He had taken up yoga with the original idea of acquiring spiritual force and divine guidance and energy for his work in life. He concentrated on Yogic Sadhana at Pondicherry which, according to his biographer Nirodbaran, became the 'Cave of Tapasya'.

It reminds us of the following lines from 'Savitri'.

A wide God-knowledge poured down from above.

A new world-knowledge broadened from within.

The human in him paced with the divine.

'... now day after day I realised in the mind, I realised in the heart, I realised in the body the truths of the Hindu religion.'

'... But what is the Hindu religion? What is this religion which we all call Sanatana, eternal! It is the Hindu

religion only because the Hindu nation has kept it, because in this Peninsula it grew up in the seclusion of the sea and the Himalayas, because in this sacred and ancient land it was given as a charge to the Aryan race to preserve through the ages. But it is not circumscribed by the confines of a single country, it does not belong peculiarly and forever to a bounded part of the world. That which we call the Hindu religion is really the eternal religion, because it is the universal religion which embraces all others. If a religion is not universal, it cannot be eternal...' Sri Aurobindo.

With the Mother's arrival there began a new era of spiritual creation. 'An hour began the matrix of new time', and 'Beginnings of the Ashram'. He did not want to be a guru because he did not want numberless disciples but he wanted 'instruments of God' free from petty egoism – 'someone awakened by my stouch or by that of another, to manifest from within his sleeping divinity and to realise the divine life. Such men will uplift the country'.

Sri Aurobindo felt that old system of yoga could not synthesise or unify the spirit and life, it dismissed the world as an illusion or a transient play of God. In Sri Aurobindo's view this ascetic renunciation is not necessary – spirit ad mannter, 'the two poles of existence' are not mutually exclusive or antagonistic, for spirit is involoved in matter and is progressively manifesting itself in the material world through the evolutionary process. What must be renounced, rejected completely, is the hold of egoism, and of the lower movements of nature in man-desires and passions of various kinds, the liking's and disliking's vanity, anger and host of other things which bind man to his lower nature. Only then the inmost psychic being come into the forefront and lead him to a union with the divine. He insisted on the primacy of the spiritual ideal for our country. For him, India is the Bharata Shakti-Guiding force for the entire world.

His self-control, detachment, equanimity, compassion for the poor are all signs associated with a Yogi: His address to the Youth in August 1907 remain inspiring even today.

"There are times in a nation's history when Providence places before it one work, one aim, to which everything else, however high and noble in itself, has to be sacrificed. Such a time has now arrived for our Motherland when nothing is dearer than her service, when everything else is to be directed to that end. If you will study. Study for her sake; train yourself body and mind and soul for her service. You will earn your living that you may live for her sake. You will go abroad to foreign lands that you may bring back knowledge with which you may do service to her. Work that she may prosper. Suffer that she may rejoice. All is contained in that one single advice."

One really wonders how Sri Aurobindo could write on diverse subjects, all concerned with the highest reaches of human vision and throught and above all, in a language which one of his English disciples Arjava (J.A. Chadwik) aptly described as global.

All his great achievements were prepared in the secret silence of retirement, and with each emergence he brought down a greater light, a higher range of illumination and a vaster kingdom of knowledge and power. On December 5, 1950 at 1.26 A.M. he left his body. The prophetic message of the divinised earth of man's God-like possibility is immortalised',

'For in the march of all-fulfilling Time
The hour must come of the Transcendent's will ...
The frontiers of the Ignorance shall recede,
More and more souls shall enter into light...'

It was Sri Aurobindo's influence on the Indian National Congress, which made the organisation include Swadeshi, Boycott and National Education in its programme. He wrote editorials in *Bande Mataram* urging the party to give sufficient attention to education. The need for a greater experiment in national education continued to be felt. In the *Bande Mataram* of February 24, 1908, he wrote: The idea of a National university is one of the ideas which have formulated themselves in the national consciousness and become part of the immediate destiny of people. It is a seed which is sown and must come to its fruition, because future demands it.

In his Preface to National Education (1920-21), he very clearly stated that national education is an education proper to the Indian soul and need and temperament and culture that we are in quest of, not indeed something faithful merely to the past, but to the developing soul of Indian, to her future need, to the greatness of her coming self-creation, to her eternal spirit.

We must keep abreast with the march of truth and knowledge, fit ourselves for existence under actual circumstances, and our education must be therefore upto date in form and substance and modern in life and spirit. Education to be truly Indian must light in the consciousness of the student the place of quest.

Sri Aurobindo's concept of an 'integral education' (the phrase was used much later by the Mother), laid emphasis on the child as soul – a truth which any sound system of education must recognise, first and foremost, and then proceed to help its other faculties to develop. An integral education will recognise the individual not as a vague combination of matter (body) and spirit, but a personality having four distinct aspects: (a) Physical, (b) Vital, (c) Mental, and (d) Psychic. An ideal system of education must open up avenues for the best possible development of each of these faculties of the student.

The syllabus for integral Education is all life – and promises that are there beyond the present conditions of life – and behind the appearance of life. For it neither matter nor spirit is unreal, but the traditional dichotomy between them is unreal.

In a right environment, the inner being of the student, the soul, the psychic, must dominate the other aspects of his being. That will ensure harmonious growth of the person. Each child is unique. Creation finds a delight in variety and multiplicity. Hence, clubbing a group of students together and judging them applying a common, mechanical yardstick is wrong. Each one has a possibility, a hidden capacity, a conducive environment and opportunity must be created for the latent quality to blossom.

There are according to Sri Aurobindo, three instruments of the teacher: instruction, example, and influence. The good teacher will seek to awaken much more than to instruct; he will aim at the growth of the faculties and the experiences by a natural expansion. He will not impose his opinions on the passive acceptance of the respective mind; he will throw in only what is productive and sure as a seed, which will grow under the benign fostering within. He will know that the example is more powerful than instruction.

One of the forms under which Sri Aurobindo conceived of the development of his work was to establish at Pondicherry an International University Centre open to students from all over the world.

"It is the most fitting memorial to his name so as to keep alive his work with unabated vigour", said the Mother in 1951 and on the 6th of January 1952. The Sri Aurobindo International University Centre was inaugurated – its name changed in 1959, in order keep itself free from the conventional ideas which go with a University, to Sri Aurobindo International Centre of Education.

The objectives of the Centre of Education are:

1. to evolve and realise a system of integral education and to make it a dynamic ideal for society;
2. to organise an environment and an atmosphere affording inspiration and facilities for the exercise and development of the five essential aspects of personality: the physical, the vital, the mental, the psychic.
3. to emphasise the unity of all knowledge and to attempt to bring Humanities and Science closer together into a real sense of unity for the benefit of both;
4. to develop the sense of the oneness of mankind and international collaboration; and
5. to prepare for the role that India has to play in the formation of the new international harmony.

His ideas on education, which reveal his in-depth and sensitive understanding of child psychology were published in a series of articles on 'A system of National Education' in 'Karmayogin'. According to him, every child has in him something divine, something his own ..., the task is to find it, develop it and use it. The chief aim of education should be to help the growing soul to draw out that in itself which is best and make it perfect for a noble use...

The teacher, according to Sri Aurobindo should act as an instructor and not as a taskmaster, he is a helper and a guide. His business is to suggest and not to impose. The idea of hammering the child into shape by the parent or teacher is a barbarous and ignorant superstition. It is he himself who must be induced to expand according to his own nature.

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BOOK REVIEW

Rajput, Sarla and Others: Handbook on paper setting; New Delhi: NCERT-2004; unpriced pp 88 + iv Not Priced.

This small book fulfils the long standing need of a Handbook on paper setting for teachers, teacher-educators and paper setters though this claim has been modestly denied in the preface.

The first chapter brushes up the concept of Educational Evaluation while a careful study of succeeding six chapters gives the sufficient skill to the reader to be able to develop a reliable and valid question paper for his professional use in the class. The book sums up all the theory taught in teacher education programme in a very concrete form and its understanding enables an evaluator to develop a viable tool of evaluation. The seventh chapter entitled "Development of Question Paper for Laboratory Work" assumes a very great importance as in most of the courses, laboratory work has been added at school level. The annexure which includes formats of the design, the blue print, the item sheet, the scoring key and marking scheme and the question wise analysis adds much value to the Handbook.

The language of the book is register based and is best suited to the subject. The print and the other features of the book including type size are up to the mark.

Needless to repeat, the need for such a book has always been felt by trainees as well as by paper setters. This book will serve as the bacon light for educationist working in the field of evaluation. The team of authors deserves congratulations as they have successfully made the technical matter of evaluation down to the earth simple. The readers expect now some more topics to be rendered as simple as the task of paper setting. Grading, Continuous and Comprehensive Evaluation, Moderating, etc. are some topics which need to be made easy for classroom teachers.

The book is really a Handbook in the real sense to be used by paper setters in the schools and its copies to be used by paper setters in the schools and its copies should be made readily available in school libraries, teacher education institutions and boards of school education.

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Art Education: Teachers Handbook for Class VI NCERT, New Delhi. Pages 182 + Price Rs. 95.00

The book is a useful guide for the teachers of art teaching Class VI. It has been divided into 14 self contained and yet interconnected chapters. Its approach is integrated which is needed for the early stage of education. In the

VI chapter, the methodology of art education has been dealt comprehensively. It is useful for the teachers of art as well as for other teachers also. The visual arts and performing arts have been comprehensively discussed in separate parts providing enough reading materials for teachers as well as general readers. The controversies regarding art and art education have been carefully avoided. Needless theoretical discussions which are not required at this stage do not find place in the book. But the various dimensions of art forms have been vividly described and their complementarily has been established. It is good that the book avoids the demonstration of scholarship not at all required at this stage. But certain concepts do not find their place where terminology has been described. It is not a book on philosophy of art but on the pedagogy of art and it serves its purpose well.

On page 152, description of santoor (shat tantru) has been made. The instrument went out of India through the silk route with traders and was later modified. The origin of Rabab and its relationship with the Sufiana Qualam has been rightly traced. Many historians of music wrongly attribute it to Gulam Gaus of Bukhara. Violin in its present form may appear European in origin but instruments like this have been depicted on stupas and temples. It is not a book of Musicology or History of Art. It is a teachers' guide written with a specific purpose which it serves very well.

Its printing and get up etc. meet the international standard. But looking at the Indian teachers who are not interested in purchasing books its price is a little higher. Books like this need to be freely distributed among teachers. In the end, I would like to congratulate the coordinator and her team for producing this useful book, The mistakes here and the there do not bring any discredit to the authors or the publisher who had to complete this task within a limited period.

Surya Nath Singh
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FORM IV

(See Rule 8)

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I, Puran Chand, hereby declare that the particulars given above are true to the best of my knowledge and belief.

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CONSTITUTION OF INDIA
Part IV A

Fundamental Duties of Citizens

ARTICLE 51A

Fundamental Duties – It shall be the duty of every citizen of India —

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diverstities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wildlife and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

(k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

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